$2.00 per Year. 25 cts. per Copy.

AMERICAN JOURNAL OF PHOTOGRAPHY

AN ILLUSTRATED MONTHLY
DEVOTED TO PHOTOGRAPHY IN ITS WIDEST SENSE

Vol. XVI. MARCH, 1895. No. 183.

CONTENTS.

PAGE

FRONTISPIECE.—"A Little Irish Colleen."
Backgrounds and Accessories, ... *Jean Paar*, [Translated by *J. F. Sachse*,] 97
Old Times Slides and Negatives, ... 103
Industrial Photography—II. [Illustrated], ... 105
Lippmann's Photography in Colors [Illustrated], 108
Photo-Mechanical Printing Processes, ... *Ernest Edwards*, 112
Photography and Astronomy, ... 118
The "Joly" Color Photography, ... 119
Advertising, ... 120
Photography of the Heavens, ... 122
Some Notes on the Early History of Photography, 125
She Didn't Like It, ... 131
THE EDITORIAL DROPSHUTTER.—(*a*) Do not be Misled, 133; (*b*) Fine Flash-light Portraiture, 134; (*c*) The Truth of It, 134; (*d*) Lens Work for Amateurs, 135; (*e*) Fire in a Studio, 135; (*f*) Cartography Supplemented by Photography, 137; (*g*) New Dry Plate Factory, 137; (*h*) California Camera Club, 137; (*i*) Their Mail Stopped. 137
PHOTOGRAPHIC HINTS AND FORMULÆ.—(*a*) Anthion—Schering, 138; (*b*) Celerite Paper, 139; (*c*) The Relief of a Picture on a Gelatino Bromide Film, 141; (*d*) On the Cause of Fading of Albumen Prints, 141; (*e*) Preparation of Ferric Oxalate Solution for Hot-bath Platinotype, 142; (*f*) Our Frontispiece 142
IN THE TWILIGHT HOUR, ... 143
WISE AND OTHERWISE, ... 144
A Study of a Photograph, ... 145
Testimonial, ... 146

Subscriptions received in London, by Trübner & Co., 57 Ludgate Hill.
Agent in Germany, G. Hedeler, Grimmaischer Steinweg 3, Leipzig.

PHILADELPHIA:
THOS. H. McCOLLIN & CO., PUBLISHERS,
No. 1030 ARCH STREET.

Entered at the Philadelphia Post-Office as second-class matter.

INDEX TO ADVERTISEMENTS.

ACME ARISTO BURNISHER, ... xvi.
ALPHA ARISTOTYPE PAPER, ... xxv.
AMERICAN AMATEUR PHOTOGRAPHER, ... xi.
AMERICAN DRY PLATE CO., ... xiii.
ANTHONY, E. & H. T. & CO., Entrekin's Burnishers, ... xxxii.
ANTHONY, E. & H. T. & CO., "Aristo" Collodion Paper, ... 4th page of cover.
BARGAIN LIST, ... i and ii.
BAUSCH & LOMB OPTICAL CO., Lenses and Shutters, ... ix., xix.
BEACON PUBLISHING CO., THE, ... xix.
BLITZ-PULVER FLASH-LIGHT, ... xxxiv.
BLUE BOOK OF AMATEUR PHOTOGRAPHERS, ... xxxv.
BUCHANAN, W. P., Luxo Powder, ... xv.
BUFFALO ARGENTIC PAPER CO., ... xxii.
CANADIAN PHOTOGRAPHIC JOURNAL, The, ... xxxi.
CARBUTT, JOHN, Photographic Plates, ... xvii.
COLLINS, A. M., MANUFACTURING CO., Photographic Card Stock, ... xii.
CRAMER PLATES, ... ii.
DARLINGTON'S HANDBOOK, ... xxvi.
DIETZ RUBY LAMP, ... xxxv.
DRESDEN PHOTO-PAPER WORKS, Albumen Paper Pensée, ... xl.
EASTMAN KODAK CO., Photographic Specialties, ... v, vi, vii.
FRENCH, BENJ. & CO., Lenses, ... viii.
GENNERT, C., Photographic Supplies, ... xi.
GUNDLACH OPTICAL CO., Lenses, ... xii.
HARRISON & CO., W. P., Plating Dynamos, ... xxxvi.
HIGGINS, CHAS. M. & CO., Photo Mounter, ... xxxi.
HOUGH, FRANKLIN H., Patents, ... xv.
ILOTYPE COMPANY, Collodion Paper, ... 3d page of cover.
INTERCHANGEABLE VIEW ALBUMS, ... xxvii.
KEMPER, A. C., "Kombi" Camera, ... xv.
LAVETTE'S PATENT ENVELOPE, ... xxxviii.
LONDON CHEMICAL CO., Hale's Photographic Specialties, ... xxiiiv.
MANHATTAN OPTICAL CO., Lenses, ... x.
MERCK & CO., Pyrogallic Acid, ... xx.
MOREHOUSE MFG. CO., Schaefer Album, ... xxiv.
MUNN & CO., Scientific American, ... xxviii.
MURPHY, GEORGE, Photographic Supplies . . . . . iv.
NEW YORK ARISTOTYPE CO., Photographic Supplies, ... xxxvii.
NOLAN, JOHN R., Patent Attorney, ... xxxvi.
ORTHOSCOPE LENSES, ... xxi.
PACIFIC COAST PHOTOGRAPHER, ... xvii.
PACKARD BROS., Scenic Productions, ... x.
PERFECTION BLUE PRINT PAPER, ... xxix.
PHILLIPS & JACOBS, Photographic Chemicals, ... xvi.
PHOTOGENIC PAPER CO., Matt and Glace Papers, ... lxiv.
PHOTOGRAM, THE, ... xv.
PRESS CLAIMS CO., Patents, Pensions, etc., ... ix., xxviii., xxxvi.
PROSCH MFG. CO., Shutters and Flash Lamps, ... xxxv.
RAMSPERGER, H. G. & CO., Photo Specialties, ... xxii.
ROCHESTER OPTICAL CO., The "Premo" Camera, ... xxiii.
SCHERING, E., Pyrogallic Acid Developer, ... xxxiii.
SPRAGUE SCHOOL OF LAW, ... xxvi.
SUNART PHOTO CO., Sunart Magazine Camera, ... ix.
UNITED STATES ARISTOTYPE CO., ... xiv.
WALPOLE DYE AND CHEMICAL CO., Photographic Chemicals, ... xxvi.
WESTERN COLLODION PAPER CO. (Killborn & Kurtz), ... xi.
WILSON, EDWARD L., Photographic Literature, ... xiv

"A LITTLE IRISH COLLEEN."

NEGATIVE BY HARRISON KRIPS,
PHILADELPHIA.

AMERICAN JOURNAL
OF
PHOTOGRAPHY

THOS. H. McCOLLIN, Managing Editor.

JULIUS F. SACHSE, Editor.

VOL. XVI. MARCH, 1895. No. 183.

BACKGROUNDS AND ACCESSORIES.*

FROM THE GERMAN BY JEAN PAAR, BRESLAU–SCHEITNIG.

BACKGROUNDS used by the professional photographer in the studio are of two kinds. They are either for the purpose of giving a possible plastic effect to a portrait (light grounds for dark portraits, and dark grounds for light, the latter mainly for ladies in light attire), or else unite this object with the more extended one, for giving character to the person or costume as the case may be, by the addition of scenery, such as landscape, salon, garden, rustic, sea view, suitable to the composition in general.

With the exception of dark plain effects, all backgrounds should, in every case, be kept light and vapory. They should be characteristic of the intended *motif*, yet must be delicately indicated in the reproduction without stickling on detail.

With scenic backgrounds especial care must be taken to ensure harmonious distance, artistic effect and correct proportions in the perspective. Too little perspective is as bad as too great distance, and the latter always appears where too great an area of the intended scene is introduced into the picture.

In most painted backgrounds, such as special landscapes, this fault is apparent, just as it is in most photographs of landscapes or views taken from nature. "Too much is carried on the plate; Less would be more."

*Translation by Julius F. Sachse from *Das Atelier des Photographen.*

True artistic motive becomes lost among the great mass of secondary matter and remains unnoticed. The great trouble is, that in most backgrounds, there is too much background, not enough fore or middle ground. In all cases avoid painted accessories that are furnished to supplement a painted background.

To the conscientious, artistically inclined professional, accessories only become of value when he can use them intelligently to complete a composition, on true art lines, by breaking up any unartistic parallel lines or similar eyesore. It is just as awkward to have an accessory in a set place in the studio as it is to have it attached to the background. When once the habit grows on a photographer to use additional pieces of movable accessories, it usually results in a ridiculous extreme.

The latter condition, however, too often appears without introducing extra properties, as many photographers are of the opinion that accessories are intended for the purpose of filling in such parts of the plate as are not covered by the subject that is being photographed.

Thus it happens that frequently photographs appear more like a show-card of a house-furnishing shop, or an advertisement for a photographic stock house, than an attempt at artistic photography.

To avoid this, the operator should not commence by arranging the accessories in a somewhat decorative manner before posing his sitter. The reverse should be the rule, and only in cases where any objectionable void would occur, or when the lines on one side need breaking up, by support or balance, as in the arrangements of groups,—then and only then should the needed accessory be introduced in its proper place.

Nothing should show prominently in a picture, unless it is absolutely requisite that it should be there.

Whenever anyone sees upon a photograph a foreign object, that could well be dispensed with, or that was introduced into the composition without aim or object, except to fill up, the conclusion at once arrived at is that the operator, from an artistic point of view, was a slouch and no artist.

A single female portrait rarely calls for any accessory. How-

ever, if demanded, it should never be placed on one side only, unless the figure is posed sideways, in which case the extreme line needs no further support.

A group of two persons, where one is standing, however, requires some support on the outside of the standing figure, but whether it be a room decoration, a chair with a picturesque shawl fragment, an etagére or similar property, or a rock or fence panel in a landscape, the accessory should never be so placed as to indicate the reason for its introduction into the composition.

The impression should rather be given that the properties were there by mere accident. This object is to be achieved, by not crowding the accessory upon the subject, but by placing it, if possible, back of the focal plane of the picture, at the same time taking care not to set it too close to the background, else a prosaic shadow might mar the artistic grouping and destroy the intended illusion.

Set scenes or universal backgrounds should be absolutely banished from every studio. It is only when every successive sitter leads us to make new arrangements and new combinations, and we are in a position to handle every face and costume in an original and harmonious manner, that we enter upon the path, at the end of which true art is enthroned.

But few photographers have thus far given to their backgrounds and accessories the consideration due these important factors in artistic photography. Among the few,—if my brother professionals will pardon me,—an amateur stands at the lead.

Allusion is here made to Baron Rothschild, of Vienna, from whose work many of us can learn much if we be so disposed.

All envy of this praise will cease when the fact is recalled that no later than last spring Baron Rothschild, in perpetuation of his photographic triumphs earned at the Paris Exhibition, endowed with 10,000 guilders a home for widows and orphans of deceased professional photographers.

Baron Rothschild is also, and that characterizes the importance of the man, one of the few amateurs who acknowledge the true value of retouching, and the justification for its use. This help he

uses mainly,—and here we again come into touch with our main theme,—to tone down the background, and grade the blending down so that some of his pictures give the impression that they are a reproduction of paintings from our old masters, and not merely an original photograph from life.

The fact that it is possible to produce original portraits and pictures which give the impression to the beholder that he is viewing a reproduction of a classic art work, and not a mere photograph, is the best refutation of such as doubt or deny that there is such a thing as photographic art. Wherein I include such means as retouching, as applied to photography, that can produce results which fulfill all the demands requisite to place them within the category of high art.

It may be seen by the above named portraits that the producer has fully recognized the true relation and the great importance of the background to the principal subject; and with a true artistic feeling and appreciation scorns to fill the space between figure and frame with meaningless rococo bric-a-brac or impossible cloud formations.

The principles of portraiture rest upon a single law, which however is capable of modification. It demands that for strong, characteristic heads, with rich modeling, a background must be selected a few shades lighter than the prevailing tone of the head. On the contrary, when a delicate light subject presents itself, such as a decided blonde, a ground must be used whose general effect is darker than the prevailing tone of the portrait, care being taken that it be not so dark that the head would appear hard and without detail.

The latter condition, which every one in practice has experienced more or less, goes to show,—if one would be strictly governed by this rule,—how many shades of background would be required in an ordinary gallery, to produce truly artistic work in all cases. A condition that seems to endorse the claim made years ago by an old time operator in Berlin, "that to produce absolutely artistic work it would be necessary to paint a special background for almost every sitter."

In connection with the rule that for dark heads a light back-

ground, and for fair portraits the reverse is necessary, the fact must not be lost sight of, that where darker backgrounds are used, they must always be selected so as to be several shades lighter than the shadow side of the face or head. But even this is not the only requisite to obtain an artistic impression.

It is not only absolutely requisite that the head stand out in relief from the contrasting tone of the background, by contrasting tones, but the foundation must be a perspective one.

The assumption of the present day, that according to the law of contrasts a flat background gives greater plastic modeling to a head than one painted and perspective, is erroneous and misleading.

In proof of this theory take any one of our old masters, about whose honest striving to comply with the elementary requirement of true art there can be no question, and yet they are now ridiculed in so-called modern art schools and circles. This fact, however, is overlooked, viz.: That elementary truths may be ridiculed, but cannot be controverted.

Modern artists refuse to acknowledge the true and infallible laws of true art merely because the ancients promulgated them. Therefore, new round-about paths are trodden, rather than travel in the old and beaten road.

To achieve pecuniary success upon the above lines, it does not require dozens of backgrounds so much as a little universal common sense and artistic training to place the grounds correctly and light them properly, and, if found necessary, direct an intelligent and capable retoucher how to change and alter the tones wherever necessary, so as to bring out the portrait.

Another great stumbling-block for the average photographer is the too frequent lack of harmony between background and accessory. Here the crime against true art is perpetrated either through ignorance, a lack of taste, convenience or laziness. Rustic furniture and sandstone balustrades are as much out of place in a drawing room, as are rococo chairs and tables and upholstered plush furniture in a garden scene; the same is the case where a wooden balcony and pillar is placed in front of a sea-scape, to say nothing of the introduction of rock work, tree stumps

and artificial flower and grass effects in impossible situations;—and yet we have not even touched on universal, interchangeable properties.

Unsuitable as carved and plush furniture is in combination with landscapes or garden decorations, equally out of place are the combinations of salon furniture with plain backgrounds, abominations perpetrated even in the most renowned establishments.

A blank, absolutely smooth wall and a carved salon chair are seldom or never found together in reality. If such must be used, let the retoucher introduce suitable lines to break up the monotony.

The artist operator should be capable of selecting his accessories only after a careful study of his subject, and by proper arrangement and lighting bring about an arrangement that is artistic and lifelike.

Good Ideas for 1895.—Tolerate neither disorder nor its brother-in law—idleness.

The prompt man is on time; the other fellow occasionally ahead of time.

Courteous inhospitality thins out the loafers.

Trash around a place of business increases the fire risk.

The black sheep will be found out without the searcher being forever suspicious, and making himself and all around him nervous for fear he will not know them.

Business talk should be at a mark. Many trades are killed because the salesman's mouth shot all around the target, but not at it. One well-aimed talk is worth fifty hap-hazard ones.

The day's labor well done may not amount to much in itself, but it becomes the needed link towards the better to-morrow.

Haste with customers makes waste with orders.

The sun has to shine for many days, but, like the wise salesman, gives every one his turn.

Equal price on equal terms maketh friends for the wise firms.

Doing your best to-day opens the way for a new record next time.

The fellow who owns up is far ahead of the man who has an excuse.

Nothing brings success like effort.

OLD-TIME SLIDES AND NEGATIVES.

AT the Members' Meeting of the Photographic Society of Philadelphia, held December 26th, 1894, Mr. John C. Browne gave a most interesting talk on the topic, "Lantern Slides, Old and New," an exhibition of a collection of slides and photographic relics of the most attractive and instructive character. The collection embraced specimens made principally by members of this Society, beginning about the year 1862 and extending to the present time. Among them were some chromatrope pictures which used to delight an audience twenty-five years ago, with their bright colors and ever-changing forms; Woodbury slides made in Philadelphia prior to 1876; positives from gelatine plates made before gelatine plates were commercially sold in the United States; positives by albumen, Taupenot, collodion, washed emulsion, coffee, carbon and other processes. Some slides were shown for the purpose of illustrating the toning or strengthening of the image by alkaline gold, potassium sulphide, palladium bichloride, platinum bichloride, mercury bichloride, with after use of ammonia, or cyanide of silver.

This paper was supplemented by Mr. Browne, at the next regular meeting, January 9th, 1895, with another interesting talk on "Old-Time Negatives and How They Were made." He said in part:

"My photographic experience commenced in the year 1856, while studying chemistry at the laboratory of Prof. James C. Booth, in Philadelphia. One day while hunting in an old closet I chanced to find a queer-looking piece of apparatus covered with dust, the like of which I had never seen. Upon inquiring, my preceptor informed me that it was a daguerreotype camera, and gave me permission to use it. My results were not satisfactory, as my tools were not of the best, and I possessed no knowledge on the subject except what I could pick up from a book which imperfectly described the process. After many failures and but little success the attempts to produce daguerreotypes were abandoned, and my attention turned to making ambrotypes or posi-

tives on glass, they being under-timed, under-developed wet collodion pictures that required a backing of asphaltum varnish to examine them properly. This was a pleasant amusement and required no printing. The picture was reversed like a daguerreotype, and if properly timed and developed, was very attractive.

"Time passed, and I had forgotten all about the subject of photography until my attention was called to this wet collodion negative process in the winter of 1859. I caught the infection at once, and since that period have been a willing slave to picture-making with a camera.

"A former president of this Society once asked the question, 'What is to become of all the old lenses?' fearing that with the rapid addition of newer and better ones the market would be overstocked. If he had asked, 'What is to become of all the old negatives?' the question would have been more difficult to answer. I am asked to-night to refresh your memory with a description of some old-time methods of making negatives, and shall commence my subject with the wet-collodion process, which will occupy all the time that can be given to it this evening. On some future occasion I shall be pleased to continue the subject, giving an account of various dry processes, and show specimens of apparatus."

Mr. Browne then went over the details of the process, exhibiting the various pieces of apparatus as he described them, from the cleaning of the glass and preparation of the collodion to the finishing of the negative. He gave some valuable formulæ, tested by his own long experience, for baths, developers, redevelopers, intensifiers, etc. Not the least interesting part of Mr. Browne's reminiscent talk was his account of the apparatus used when expeditions were made away from the studio and dark room. Charging boxes and cameras, portable dark rooms, bath boxes, and dippers, lenses, etc., were shown, and their working described. A member had loaned for exhibition a curious little camera box of French design and make, in which the plate was sensitized, exposed, and developed without removing it from the box. This, Mr. Browne said, was more valuable as a curiosity than as a very practical piece of apparatus. A friend of his, years ago, had at-

tempted to show off one of these boxes to some friends, and the chief result accomplished was a large area of silver stain upon a parlor carpet.

Various questions were asked and answered, and details of the process discussed, after which, upon motion, the thanks of the Society were unanimously voted to Mr. Browne.

INDUSTRIAL PHOTOGRAPHY—II.

IN the JOURNAL for November last, a paper was published on Industrial Photography, illustrating how largely the various photographic processes of the day entered into the development of our commercial and industrial enterprises.

Since the publication of the above paper numerous letters have reached us, calling attention to special branches of industry largely dependent upon photography, that had not been mentioned in the enumerated list.

The most prominent establishment proved to be a large engineering company whose works are in the outskirts of Philadelphia. The establishment is known as "The Link-Belt Engineering Company." Their specialty is the manufacture of automatic labor-economizing machinery for handling any material in bulk or package.

This is done by means of a system of a peculiar endless chain to which are attached buckets, scrapers, aprons, or other contrivances suitable for the purpose. The plant is different in almost every case. No kind of merchandise, material or refuse is too heavy or bulky to be hauled or conveyed by the output of this company.

Now to transact their extensive business and canvass for orders this great establishment is dependent almost entirely upon photography, as by that process alone can they give the prospective patron, without subjecting him to perhaps a long journey, any idea of the working of the machinery in actual operation, and method of handling the special line of material in which he is interested.

Over one thousand negatives, mostly 10x12, have thus far been made by the company's specialist of the machinery built and plants erected, which are kept ready for instant use. Prints from those meeting special requirements are mailed upon application.

It will be easily seen what a great factor photography has been in the development of this and similar great engineering enterprises, and how greatly superior the sun picture is to any drawing or other representation, which may or may not be true to nature. With the photograph, the prospective investor has the undeniable proof of the practical workings of the machinery in which he is interested.

No country is so remote that trade cannot be solicited there by the aid of photography. No model, no matter how carefully constructed, will give the same conclusive proofs that may be judged from a photograph, taken on the spot with the machinery in actual operation. As an illustration, we reproduce one of the photographs, such as are used regularly in routine business. This is known as a "trough conveyor," and is used for handling and storing large quantities of coal. The one illustrated is the coal storage plant at Salem, Mass., which was erected in the latter part of 1890, for the Lehigh & Wilkesbarre Coal Co. It is located on a dock property, the storage plant proper occupying an area of about 450 ft. long by 530 ft. wide.

The operations effected in this plant are, first, the unloading of coal from vessels and its storage in four conical piles of 20,000 net tons capacity each, and, second, the removal of coal from these piles and its delivery into cars for shipment to New England markets.

The unloading of vessels is effected by three portable automatic shovels, which move lengthwise of the pier and deliver coal into a pan conveyor, which runs parallel with and adjacent to the line of travel of the automatic shovels. The pan conveyor delivers the coal to a tower, from which it is distributed, by means of circular chutes, into any one of the four trimmers. The trimmers are supported by the large "A" trusses shown in the cut. The bottom of the trimmer conveyor trough is a steel ribbon, which is wound upon a large drum located at the foot of the

truss and arranged to be drawn out in grooves fixed in the trough, so that its end, which is the only discharge point for the coal from the conveyor, shall always be at the constantly rising and receding apex of the pile.

The reloading machine is composed of a horizontal and an inclined portion, the two, however, working together, so as to render carriage of coal continuous from any part of the horizontal portion to the upper end of the inclined portion. The inclined portion terminates in a tower, from which the coal is distributed over screens into cars. Each reloading machine controls the coal stocked out by two trimming machines, the three together forming what is known as a "Group." All of which is comprehensively shown at a glance by a small photograph, a reproduction of which accompanies this paper.

Sunbeams have Sound.—One of the most wonderful discoveries in science that has been made within the last year or two is the fact that a beam of light produces sound. A beam of sunlight is thrown through a lens on a glass vessel that contains lamp-black, colored silk or worsted or other substances. A disc, having slits or openings cut in it, is made to revolve swiftly in this beam of light, so as to cut it up, thus making alternate flashes of light and shadow. On putting the ear to the glass vessel strange sounds are heard so long as the flashing beam is falling on the vessel. Recently a more wonderful discovery has been made. A beam of sunlight is caused to pass through a prism, so as to produce what is called the solar spectrum or rainbow. The disc is turned, and the colored light of the rainbow is made to break through it. Now place the ear to the vessel containing the silk, wool or other material. As the colored light of the spectrum falls upon it, sounds will be given by different parts of the spectrum, and there will be silence in other parts. For instance, if the vessel contains red worsted, and the green light flashes upon it, loud sounds will be given. Only feeble sounds will be heard if the red and blue parts of the rainbow fall upon the vessel, and the other colors make no sound at all. Green silk gives sound best in a red light. Every kind of material gives more or less sound in different colors, and utters no sound in others.—*From Watchman.*

LIPPMANN'S PHOTOGRAPHY IN COLORS.*

THE ordinary photograph reproduces the form of objects and the distribution of light and shade upon them, but it tells nothing of their color. To cause it to do this has been the ambition of thousands of photographers, but it cannot be said that any has yet thoroughly succeeded. He who has come nearest the goal is Prof. Gabriel Lippmann, of the French Académie des Sciences, and it is to him that we shall owe the complete solution of the problem, if it ever comes. As it is, his method, while it does not yet enable the photographer to take an ordinary picture with all its color values rendered accurately, does reproduce colors very exactly under certain conditions, and is a real miracle of scientific astuteness. The whole subject, with special reference to Lippmann's labors, is treated in *Le Monde Moderne*, Paris, January, by Alphonse Berget, portions of whose article we give below in translation :

"As soon as the discovery of Daguerre entered into the realm of the practical, all efforts were naturally made to reproduce color, which end was sought both directly and indirectly. . . . All the investigators had but one aim—to find a chemical substance that would respond differently to the influence of the different colors. Their researches were fruitless. Nevertheless Bacquerel found that, by exposing in the camera a plate of silver covered with a layer of violet sub-chlorid, the image of the solar spectrum could be well reproduced with its colors; unfortunately, this colored image was fugitive; it faded on exposure to light."

Researches by indirect methods gave better results. The colors of an object, for instance, may be fairly well produced, according to the discovery and method of Du Hauron and Cross, by taking three pictures through a red, yellow, and a blue glass respectively, printing each in its own color, and then superposing the results. This method is now largely used for certain purposes, but is so indirect that it can scarcely be called photography in colors. The article proceeds as follows :

* Translated for *The Literary Digest*, February 16th, 1895.

"Things had reached this stage when, at the sitting of February 2d, 1891, M. Gabriel Lippmann, member of the Institute and Professor at the Sorbonne, presented to his colleagues of the Academy of Sciences a photograph of the solar spectrum, obtained by a single exposure, on a single plate, fixed permanently, and reproducing the simple colors that are seen in light decomposed by a prism.

"This time the problem was solved; the true solution had been given.

"What had the learned academician done? Of what branch of science had he demanded the principle of his beautiful experiment? Of mathematical physics.

"This was the method employed by M. Lippmann.

"A transparent glass photographic plate, sensitive to light, is prepared in the ordinary manner; this plate is exposed in the focus of the camera, the sensitive layer being on the side farthest from the objective and placed in close contact with a mirror. The exposure is made without other artifice; the plate is developed, washed, and fixed in the ordinary way, and when the glass is dry, the colors of the photographed object are seen to appear with indescribable brilliancy."

The explanation of this result necessitates a brief statement of some of the facts of optics. It is known that two rays of light moving in the same line may under certain circumstances produce darkness. This is known as "interference," and takes place when the rays are of the same simple color and when one is delayed half a wave-length behind the other, so that their vibrations destroy one another, just as two water-waves may destroy each

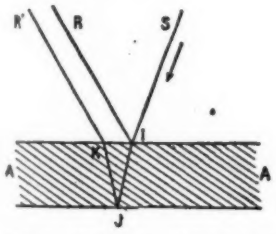


FIG. 1.—Reflections at the faces of a thin transparent plate.

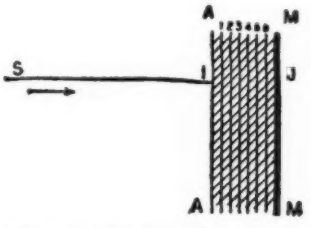


FIG. 2.—Production of interferences.

other at the points where one is behind the other by half the distance from crest to crest; that is, where the crest of one crosses or meets the trough of the other. This effect is especially no-

ticeable when it causes what are known as "the colors of thin plates"—those seen, for instance, in soap-bubbles. The production of these is explained by Fig. 1, where SI is a ray falling on the transparent plate, AA. Part is reflected at I and part enters the plate, and is reflected at J, so that there are two parallel reflected rays, IR and KR^1, of which the latter has been delayed a little by its longer route. If the incident light is white the result is a color, for white light is made up of different kinds of colored light, and interference will destroy only one of these colored components in any given case, depending on the thickness of the glass. How all this bears on M. Lippmann's method will be seen from the following translation of the latter part of the article:

"We know enough now to understand M. Lippmann's method. Let us consider a sensitive layer AA (Fig. 2) very thin and transparent, placed close to a mirror MM; suppose that light—yellow, for instance—falls on this glass; the direct ray traverses the layer, for we have supposed it transparent, and reaches the mirror, where it is reflected, giving rise to a reflected ray that meets the direct ray, with which it interferes. In every point where there is interference, the light will be extinguished; we shall have then, in front of the mirror and in the thickness of the sensitive layer, a series of parallel planes, 1, 2, 3, 4, 5, 6, in which there will be no light; they are separated one fromthe other by an interval equal to half a wave-length of yellow light, while between them are parallel layers in which the light persists and acts on the sensitive substance.

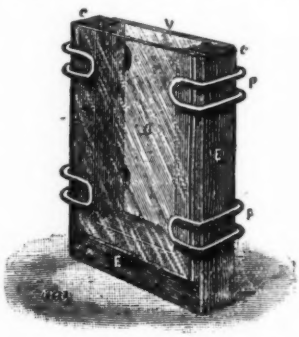


FIG. 3.—Mercury-cell for color-photography.

"If, now, we develop this by the ordinary methods of photography, what will happen? The developing liquid will cause the deposit of silver to appear only where the light has acted, and will be without action in all the points where there is darkness; that is to say, after developing and fixing, the thickness of the layer will be divided into parallel sections by leaves of metallic silver, distant from one another by 1-125000 of an inch; there will be five

hundred of them in the thickness of a leaf of cigarette paper. If now we look at this layer in white light, two consecutive leaves of silver separated by an interval of a half wave-length constitute a thin plate precisely in the condition required for the reproduction of yellow. We shall, therefore, see yellow in the photographic ptate—that is, we shall have the sensation of the color of the object reproduced.

"How shall we make practically a mirror perfectly juxtaposed to the sensitive layer?

"M. Lippmann, after having tried silver and platinum, without success, has finally adopted mercury. This metal, at once liquid and brilliant, is run into a little vessel (Fig. 3) with India-rubber edges, the sensitive plate forming one side. Glass and rubber are pressed together by little copper clamps, as the cut shows. In these conditions the sensitive transparent layer turned toward the interior of the vessel finds itself in close contact with a true metallic mirror formed by the mercury. When the exposure is over, the vessel is emptied, the clamps are removed, and the plate, being thus exposed, may be developed, fixed, washed, and dried by ordinary methods. Such is the mode of operation necessary to obtain a photograph in colors. . . .

"The results obtained are wonderful. Since the method was published in all its details by M. Lippman, who, with a disinterestedness quite scientific, has absolutely refused to protect his discovery by patents, several persons have put it into practice. Messrs. August and Louis Lumière, two skilled chemists of Lyons; M. Vallot, photographer of the Bank of France, and others have tried the method with success, and have obtained magnificent results—landscapes and even portraits."

After stating that these results necessitate an exposure of three to four minutes in full sunlight, M. Berget resumes as follows:

"That is too long, do you say? Yes; but recollect that two years ago, at the outset of the discovery, *four hours* of exposure were necessary to photograph a spectrum. The progress in two years has, then, been rapid, and everything leads us to hope that it will be more rapid still in the future."

"**Father,**" said the boy, "what is insolvent?" "Insolvent," was the reply, "is merely a long word used to describe a short condition."—*Washington Star.*

PHOTO-MECHANICAL PRINTING PROCESSES.*

BY ERNEST EDWARDS.

IT is not my purpose to-night to enter into a detailed, or scientific description, of all the various methods of photo-mechanical printing, but rather to describe broadly and explain briefly—if I can succeed in doing so in an intelligible way—those methods and processes which are now in general use.

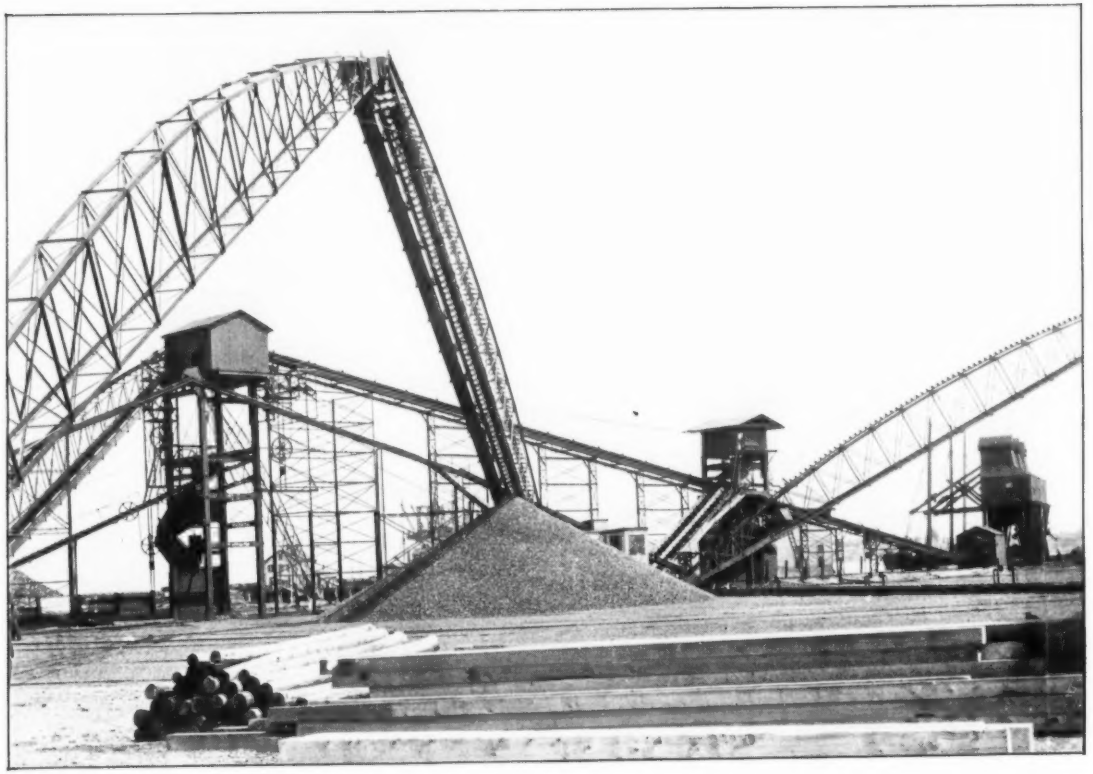
Almost without exception, all photo-mechanical processes—at all events all the processes on which I shall touch to-night—are based on the action of light on gelatine in presence of a bichromate. This is the very grammar of them, and it is important, at the outset, that this action should be well understood. The explanation of the processes based on this principle, will not then be difficult.

Gelatine—ordinary cooking gelatine I mean—when put in cold water, absorbs a certain amount of water, and swells or expands. In hot water, it dissolves. If in the hot water in which it is dissolved, there is also dissolved a sufficient quantity of a bichromate—as of potash or ammonia—and after mixture, the water is driven off, the resulting gelatine and bichromate has acquired a new property. It is subject to the action of light. Kept away from light, it still swells in cold, and still dissolves in hot water. But if light is allowed to act on it, it ceases to have this quality, it no longer dissolves in hot water. On this alteration of quality depend all the photo-mechanical processes which are in common use.

I know there are many here to-night to whom this is an old, old story, but it seems to me to be so important a one, that I am not afraid to iterate and re-iterate it.

Let us carry this rudimentary idea a step further. If we take a sheet of bichromatized gelatine, it will, of course, be easy to expose part of it only to light, and shield the rest from light, with the result that the part so exposed becomes insoluble, whilst the remainder retains its normal condition of solubility. If a shield

* Read before the Sociery of Amateur Photographers of New York.



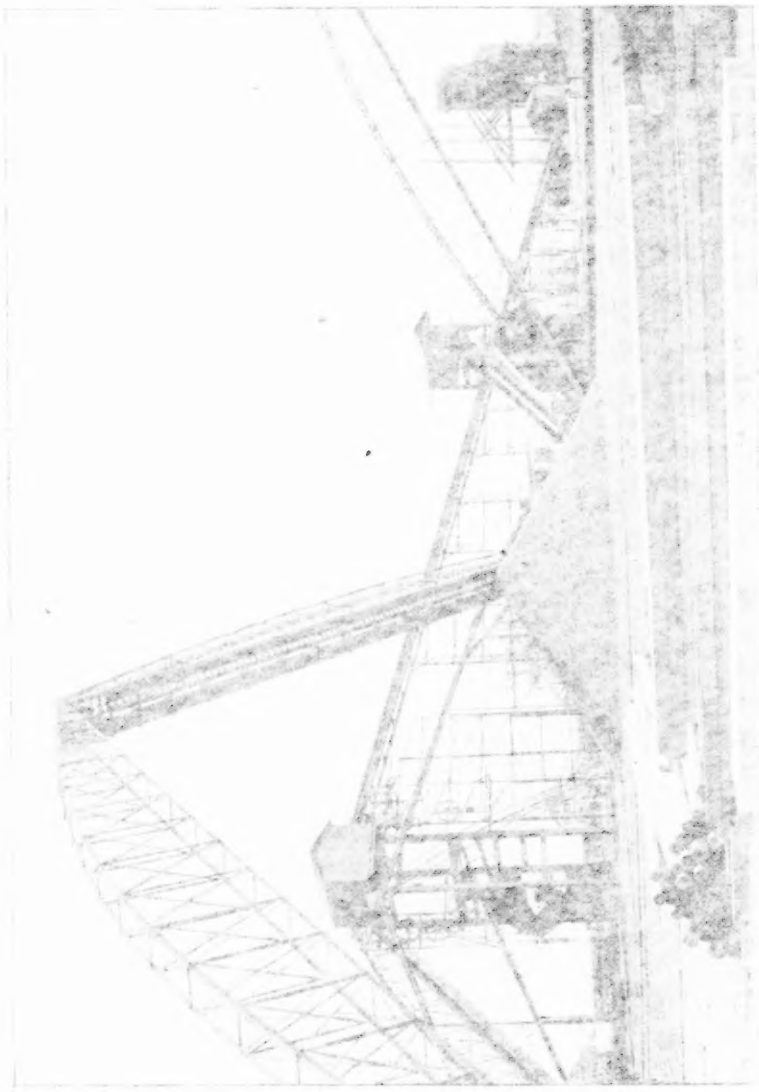
INDUSTRIAL PHOTOGRAPHY.
COAL STORAGE PLANT, SALEM, MASS

A SPECIMEN PHOTOGRAPH FOR SOLICITING ORDERS.

which will allow only the action of the light on the
desired, we shall have a sheet of gelatine, soluble,
insoluble, where desired. A photographic nega-
shield, and a sheet of bichromatized gelatine ex-
under a photographic negative becomes a repro-
negative in varying degrees of solubility and in-
ding to the degrees of opacity in the negative.
e, to be understood that such a sheet of gelatine
that other property of varying degrees of absorpe
sion, so that we are also able to obtain a picture,
ng degrees of light and shade, but one having
of relief and depression.

groups of processes based on this principle, one
inary methods of printing such as lithographic,
o printing are employed, whilst the printing
are produced by devices dependent on this ac-
The other group, in which not only the printing
dent on this principle, but the printing methods
ecular. Such as this are the photo-gelatine pro-
ostanotypc.

tographic method of printing first we find—under
hoto-lithography—bichromated gelatine is used as
obtaining lithographic transfers from negatives.
epends on the repulsion of grease and water.
gn is drawn on a porous stone with grease. The
d over with water which is absorbed, except where
A roller charged with greasy ink is then rolled
The greasy ink attaches itself to and reinforces
of the stone, but is repelled, where the porous
bed water. Paper pressed on the stone picks up
greasy ink, and the whole operation is repeated.
easy design on stone by photography, paper coated
ted gelatine is used. This is exposed to light
Placed in water, the water is absorbed where
ved. Grease applied to the surface, attaches it
ight has acted and where the water has not been
The form in which the grease is used is lithograph



can be used which will allow only the action of the light on the gelatine, where desired, we shall have a sheet of gelatine, soluble, where desired, insoluble, where desired. A photographic negative is such a shield, and a sheet of bichromatized gelatine exposed to light under a photographic negative becomes a reproduction of the negative in varying degrees of solubility and insolubility, according to the degrees of opacity in the negative.

It is, of course, to be understood that such a sheet of gelatine carries with it that other property of varying degrees of absorption and expansion, so that we are also able to obtain a picture, not having varying degrees of light and shade, but one having varying degrees of relief and depression.

There are two groups of processes based on this principle, one, in which the ordinary methods of printing, such as lithographic, surface, or intaglio printing are employed, whilst the printing plates themselves are produced by devices dependent on this action of light. The other group, in which not only the printing plates are dependent on this principle, but the printing methods are new and peculiar. Such as this are the photo-gelatine processes and Woodburytype.

Taking the lithographic method of printing first we find—under the name of Photo-lithography—bichromated gelatine is used as a means of obtaining lithographic transfers from negatives. Lithography depends on the repulsion of grease and water. Broadly, a design is drawn on a porous stone with grease. The stone is sponged over with water which is absorbed, except where there is grease. A roller charged with greasy ink is then rolled over the stone. The greasy ink attaches itself to and reinforces the greasy parts of the stone, but is repelled, where the porous stone has absorbed water. Paper pressed on the stone, picks up a portion of the greasy ink, and the whole operation is repeated. To obtain a greasy design on stone by photography, paper coated with bichromated gelatine is used. This is exposed to light under a negative. Placed in water, the water is absorbed where light has not acted. Grease applied to the surface, attaches itself where light has acted and where the water has not been absorbed. The form in which the grease is used is lithographic

transfer ink, which, in fact, is grease, with coloring matter added to it. In this way, a photographic design in greasy ink is obtained on the surface of the bichromated gelatine paper. This is transfered by pressure to the lithographic stone. The rest of the operations do not differ from those of ordinary lithography.

Photo-lithography is the oldest of the photo-mechanical processes. It has been, and still is, very extensively used.

We may take, next, the method of preparing photographically plates for surface printing. This is best understood by the statement that these are the plates which are used to print with type. It is the photographic substitute for wood engraving, and is known as photo-engraving. We all know what a type—a printer's type—is, a letter or design, cut or carved on a plane surface, all the plane surface being cut away except that which forms the design, or letter, this remaining surface when printed being charged with ink from a roller, and the ink transferred from the surface to paper, by pressure. This explanation indicates why all such work is called surface printing. The present method of producing, photographically, a plate capable of surface printing, is first of all to make the negative. Light is allowed to act through this negative on to the surface of a metal plate—generally zinc or copper—which has been coated with bichromated gelatine. The light renders the gelatine insoluble where it passes through the negative, and the design is thus, by the action of light, formed of insoluble gelatine, on the surface of the metal. The rest of the metal is etched away to a sufficient depth, leaving the design in relief, and the surface of it ready to be inked and printed. This, very broadly, is the present method of photo-engraving, which, like photo-lithography, is another of that first group of processes, where the ordinary method of printing is employed.

But both of these processes—photo-lithography and photo-engraving—are only capable of rendering black and white, they do not reproduce true photographic gradation. True photographic gradation consists of varying degrees of transparency of color, or of washes of color, from complete opacity to complete transparency. It can easily be understood that lithography,

which only recognizes grease or water; or surface printing which only utilizes a uniform flat surface, cannot render either photographic gradation or varying washes of color. Some plan, therefore, must be used, by which the simulation, at least, of gradation must be arrived at. This is secured by breaking up the gradation into dots or lines,—dots or lines of such fineness, that though existing, shall not be too apparent. Yet, distinctively, dots or lines formed of solid color, varying only in size or separation. In photo-lithography such a result may be produced by the formation of a chemical grain, such as appears in the work of the Sprague Ink-photo process, or by a network of lines secured in the negative. It does not appear, however, that as yet a satisfactory, reliable, breaking up of a photographic image into the simulation of gradation has been reached. Undoubtedly, such a process would be very valuable.

In photo-engraving, however, a far more satisfactory result has been reached. Without attempting to follow the growth of the present method, step by step, it may be briefly described. A negative is made of the desired subject, with this modification: In the camera, in front of the sensitive plate, has been placed a ruled screen. This ruled screen consists of a series of alternate opaque and transparent lines, of great fineness, generally 125 to 150 lines to the inch. Across this set of lines is ruled another series of similar lines at right angles. The result is a screen of alternate opaque and transparent squares. It might naturally be supposed that these squares would be reproduced of uniform size all over the negative. This will not be the case. In the shadows of the negative there is no action of light, consequently the squares do not appear at all. In the half-shadows, or half-tones, the squares appear normally; whilst in the lightest tints, the amount of light is so considerable that it creeps round the squares and makes them smaller and smaller, according to the amount of light transmitted, till in the highest light they become mere specks, but still, specks of definite color. The appearance of roundness which these squares have, is a visual or mental illusion, in the same way that if a series of round black dots be made on a white ground, with narrow interspaces between them,

the dots will appear hexagonal. The negative of the picture having been obtained by the device, it will be found that the picture is broken into dots of varying size, and yet of such minuteness, that the fact of its being so constituted is not very apparent. The printing plate is made from the negative by the photo-engraving process described. There is no photo-mechanical process which has grown in use so rapidly, there is no process which is so largely used. It is a process which, with good handling, gives admirable results, but without it, is worse than worthless. I am safe in saying that at present a large mass of it is worthless, but a higher education of printers is going on, and the number of those printers who can properly handle half-tone work is increasing yearly. At first, it was stoutly asserted by almost all printers that it was not possible to print half-tone plates satisfactorily, a not unusual assertion that is made with regard to all innovations. To-day, in view of what has already been done, no such argument can be used, and all intelligent printers are coming into line. Very many examples of this process are shown in this exhibition, to my mind, the most remarkable being those of the National Chemigraph Co. It is indeed hard, at first, to realize that these results are only half-tones. On examination, however, this fact becomes apparent. It becomes apparent also that they are not "only half-tones." There is discovered to be a second printing, from the same block, but in a tint ink, the two impressions being slightly out of register with one another. This greatly enhances the beauty of the result.

We can now turn to the last of the group of photo-mechanical processes in use, in which the ordinary methods of printing are employed, I mean, Photogravure.

In passing, I would like to have my fling at the, too often intentional, misnaming of process results. Photogravure is well understood to be the photo-mechanical process, which—though it is the most expensive—yet, confessedly, yields the best art results. A photogravure plate is well understood to be an intaglio printing plate produced by photography, a photogravure print is not a gelatine print, it is not a photo-engraving or half-tone, it

is not a photo-lithograph. But the publishers call the results of all these cheaper processes photogravure, because the public calls for photogravures. And this is done by some publishers whose names stand very high in the land. It is said there is no sentiment in business—it seems to me that herein there is but little honesty. Such people, if not very full of art, are at least artful.

"*I had rather be a dog and bay the moon, than such a Roman.*"

The goldsmiths of the fifteenth century, in cutting their incised designs on various surfaces—armour, perhaps, or cups, or plaques—to show the process of their work, would take impressions of it, by filling it with a viscid ink, and pressing paper on it. These impressions still exist and are called Niellos. They constitute the origin of copper-plate printing.

From the starting point of Niello, copper plate and steel plate printing has travelled through the ages. Yet this method of printing remains the same as in the fifteenth century. It is, indeed, the only printing method where machines have been found unavailable for the higher classes of work. In spite of numberless efforts, no mechanical device has yet been found to take the place of the ball of the hand in wiping the plate. The idea of the method of printing is simple enough. Lines are incised, or cut, into a steel or copper plate. The plate is rolled or daubed with ink, which is thus forced into the lines. The surplus ink is wiped off, leaving the surface of the plate clean, while the ink remains in the incised lines. Pressure is applied to the back of paper laid on the plate, and the paper being withdrawn, carries the ink with it, out of the incised lines. This is intaglio printing.

To be continued.

Employer.—How did you break that vase?

Office Boy.—I had it in my hand when I heard your bell ring, and dropped it because you told me yesterday to drop everything and answer.

PHOTOGRAPHY AND ASTRONOMY.

IN a lecture recently delivered by Sir Howard Grubb before the Royal Institution on the "Evolution of the Astronomical Telescope," he said that the introduction of photography into astronomy has gradually effected quite a revolution, and necessitated modifications in great telescopes. Photography takes what the eye cannot do, for it is cumulative; it stores up the effect of light action during minutes and hours, consequently reveals facts which could not be ascertained by human vision. With eye observation, if the driving clock falls a little out of time, and a star passess off the micrometer wire, the observer can shift the telescope a little and bring it back again; with photography this is not possible; moreover, a slight shifting of the instrument will give an elongated image of large stars, and a double image of small ones. The telescope, therefore, must be driven accurately, no deviation of more than one-twentieth of a second being permissible.

The driving mechanism, therefore, has to be of the highest quality; any deviations of the clock have to be forthwith corrected by means of another time-keeper, and the telescope at once brought back to its true position. This extra time-keeper is a pendulum beating seconds, and driven by electric pulsations through a portion of the mechanism of the clock, while exercising its functions. Every portion of the whole instrument must be made to give its aid; the telescope must be rigid, firm, and the axes of every part fairly accurate. The current from the governing pendulum can return from the clock by either of three routes, all of which come into circuit one after the other, and when everything is right, it gets back by the central contact; this part of the apparatus is called the detector, because it detects any error. If the current gets back through either of the others, the error is corrected by means of a relay, electro-magnets, and differential gearing. He rang two bells by means of the pendulum, each bell sounding seconds synchronously; then he threw one of the bells greatly out of time; the governing apparatus

then corrected the error step by step, until in a few seconds the bells were again beating synchronously. By this system, he said, it is impossible to introduce a time error without its being corrected.

THE "JOLY" COLOR-PHOTOGRAPHY.

WE have our serious doubts of the practicability of the John Joly process of color-photography, patented in England and discussed at some length in the photographic journals, some of which seem to take the matter too seriously.

The following remarks from *Process Work* we believe dispose of this "process," at least until results are shown, and this, we are sure, will be a long time:

"Those who are interested in color-photography should read the full specification of the patent claimed by John Joly, of Dublin, for 'improvement in, or relating to, photographing in colors.' It is prodigious. As a brilliant effort of imagination and of scientific theorizing it is undeniably clever, but we hazard the opinion that the author has never taken a photograph in natural colors by the means he describes. He states that he rules upon a glass plate a series of lines in successive order, red, green, violet, spaced two hundred lines to the inch, or closer. The lines are ruled with a pen, fixed in a dividing engine. The inventor says: 'I find that anilin dyes, mixed with a little gum arabic, are suitable for ruling on the plate, more especially, if this is coated with a thin layer of clear gelatine, which has been allowed to dry before the colors are ruled upon it. I use ordinary drawing-pens with carefully-set blades. It is best to provide separate pens for each color, and have these displaced relative to each other by such an amount that the lines ruled by the leading pen are dry before the lines ruled by the second pen are deposited near them, and also for the thin set of lines. I may mix the dyes with gelatine and rule this upon the plate, which may or may not be coated with a preliminary layer of gelatine.' He goes on to speak of keeping the gelatine fluid in the pen by means of gas

jets, 'or other means.' Further he speaks of the possibility of ruling the sensitive plate before exposure in the way described. The exposure is made behind a screen so prepared, and from the negative (which shows, so far, no color), a print is made. When a screen of similar kind to that used for taking the negative is placed over the print, the picture is seen in its natural colors.

"Probably it may, if any one is ever able to get such a screen, but we venture to assert that the inventor has never had such a thing, and never will be able to produce such a screen either parti-colored or otherwise, ruled 200 to the inch or closer, with a gummy or gelatinous fluid in 'ordinary drawing-pens,' however carefully set the blades may be, or however accurately his dividing engine is made. It is significant that through the specification the inventor uses the term 'I may,' not 'I can,' or 'I do.' We can only presume that, to put it colloquially, he is 'a 'avin' of us,' and is perpetrating a practical joke on the patent office, as a proof of its ability to take in anything."

—*Max Levy*, in *Paper and Press*.

ADVERTISING.

THERE are a few points regarding advertising, which, it seems to me, will apply to all periodicals that represent any industry. The first and most important is that the advertisements are read. They are an essential part of the paper. They show what is new, what others in the same line are doing, and indicate the progress of the world. A man who takes a paper devoted, say, to the gas business, is interested in everything that pertains to the manufacture and sale of gas. He looks at the paper from title to tail-piece, from head-line to foot-slug. The care he puts in looking at it depends upon the amount of time he has, but he devotes a part of the time to the advertisements.

This being the case, the advertisements should aim to be interesting and convincing, rather than startling. The use of larger type than is necessary to make the advertisement attractive, is worse than useless. Something should be told about the

article advertised. It is not enough to say that you make belts. Tell what sort you make, and give their points of superiority. Make the talk plain and interesting and it will be read.

And this leads to the point of the value of mediums. Circulation does not always count. The paper that is paid for is the more valuable because it is the one that is read. A little investigation will show that the circulation of trade papers is, to a larger extent than among literary or newspapers, free. Such circulation is of little value. A close scrutiny of the paper will sometimes give the necessary information. Its appearance will tell whether it is a paper that will be paid for and read, or whether its circulation is gratuitous.

Very little good advertising is done in trade papers. Many large concerns content themselves with inserting their cards, oftentimes using a full page for the purpose. The space could be filled with solid nonpareil, and if it were well written every line of it would be read by almost every subscriber. The very fact that a man subscribes for a trade paper shows that he is alive and is trying to keep posted on his business. If you can tell him something he doesn't know he will read it and be grateful to you. And he cares very little for your business card, no matter how much space it occupies or how large type is used.

The whole thing hinges on making the advertisement interesting and convincing. Trade papers are read as much for their advertising as for their literary matter.—*W. B. Holland, in Printers' Ink.*

The "Empire" Camera.—This popular little hand camera which sells at five dollars is not a toy, as some may suppose on account of the remarkably low price at which it is sold, but it is a good, practical, working instrument. It will make pictures 4x5 size, either "snap shots" or on a tripod. The lens is fitted with a time and instantaneous (hard rubber) shutter; an effective, and still very simple, side focussing arrangement with indicating plate; and a good "view finder" is also included in this camera. It possesses a neat leather bellows, and is made throughout in a workmanlike and substantial manner.

PHOTOGRAPHY OF THE HEAVENS.

DR. A. WOOLSEY BLACKLOCK, in the *English Mechanic*, gives very full particulars how to proceed in this interesting work:

"There are three ways in which a telescope may be arranged for taking photographs of celestial objects. The sensitive plate may be placed at the focal point of the large speculum of a Newtonian, or the objective of an achromatic. In this case, the size of the image depends on the focal length, a speculum or objective of 56-inch focus giving an image of the moon ½-inch in diameter. The negative thus produced may be made to give enlarged prints in the usual manner. The advantage of this method is that exposure is short; but the grain of the negative becomes unpleasantly conspicuous if enlarged more than five or six diameters. In order to obviate this, the primary image may be enlarged in one of two ways: either with the concave achromatic Barlow lens, which will increase the diameter of the image about one-half, making it about ¾ inch in diameter, and requiring about double the exposure, or by a system of convex lenses beyond the focal point, by which an enlarged image can be produced of any size desired, but which will require a correspondingly longer exposure in the proportion of the square of the amplification.

"The Huyghenian eyepiece may be used for this purpose in the same way as it is used for throwing enlarged images of sunspots on a screen; but my own experiments seem to show that it is not suited for this purpose, because, when it is used for producing a small amplification of five diameters, it requires to be drawn out considerably beyond the position in which it is placed when viewing the object with the eye, so that the field-lens is beyond the focal point of the speculum. The image on the plate was always fuzzy, and I was unable to improve it by placing the film anywhere within an inch on either side of what seemed to the eye the best point. The Kellner eyepiece gave rather better results, but still was not sharp enough to please me; therefore I have tried an amplifier made of two plano-convex achromatic

lenses, and have asked for particulars of Zeiss's projection eye-piece.

"The apparatus which I have devised for taking photographs at the focal point is simple, and, I believe, novel. The eyepiece and its draw-tube are removed, and a fresh draw-tube used so as to get the largest field possible—in my case, a clear inch in diameter. This tube carries a wooden frame, in which an ordinary photographic double dark slide moves easily, but which has room for two bow-shaped springs behind the slide, which press it close against the front in the same way as the slide-holder of a magic lantern. In the back of the slide-holder there is a hole exactly opposite the middle of the draw-tube in front. To this is fixed a sliding tube carrying a convex lens, one-inch focus, which is adjusted so that the front film in the dark slide is exactly in its focus. This is easily done by putting a dark slide in with both shutters drawn open, and with one plate wedged in its proper position with cork. A few scratches on the film will insure accuracy in its respect. The entire apparatus is then placed in the telescope, and the image of the moon brought into accurate focus on the film by the rackwork, the focusing lens at the back being untouched. Of course, a spoiled plate is used for this purpose, and while the focusing is done by the ordinary rackwork, the image is watched through the lens, which thus acts as an eye-piece; the film is thus placed in the exact focus of the speculum. The dark slide is now withdrawn and loaded with two plates, which are exposed one after the other, the image of the moon being brought into position by the finder of the telescope. By making the hole for the draw-tube on one side of the middle, it is to take six pictures on one quarter-plate, and six on the other without leaving the telescope and without overlapping.

"The special point for which I claim novelty is the focusing eye-lens fixed at the back of the slide-carrier, and the springs which allow for slight differences in the thickness of the double dark slides. Mine are of metal, and slightly thinner at one end; consequently they cannot slide without shake through a rigid and parallel apparatus from either end, as is necessary when taking six pictures on one plate. These springs would not be required

if only one picture were taken in the middle of the plate. The exposure has been made by removing and replacing a cover which fits loosely over the mouth of the telescope tube; but any suitable form of spring shutter can be adapted to the apparatus if preferred. When using the amplifier for producing an enlarged negative, a different apparatus is required. This consists of a camera, which holds the double dark slide at the proper distance beyond the amplifier or eyepiece. The top and bottom of this camera are prolonged sufficiently to reach the outside of the main tube of the telescope, and each carries two pieces of wood with semicircular notches, between which the outer tube of the eyepiece is gripped firmly, one pair in front and the other behind the milled head of the rack-motion. It is necessary that one of these prolongations of the camera should be hinged, in order to enable it to be fixed to, and removed from, the eyepiece tube. The focusing is done by the rack-motion in the usual manner, and I prefer using a fixed magnifying lens at the back of the apparatus for this purpose, similar to that described in the other form. Very fair pictures can be taken at the focal point with the first apparatus and a fixed altazimuth, as the exposure is short; but the second form, with enlarged image, requires a longer exposure, and for this an equatorial stand is necessary for following the moon."

[We have been requested to insert the following communication:]

2750 N 11TH ST., PHILADELPHIA.

TO THE EDITOR AMERICAN JOURNAL OF PHOTOGRAPHY:

Will you kindly allow me space in your journal to call attention to the fact that the photochromoscope figured on p. 71 of the February number and credited to Carl Zink, was invented and patented by me, shown to several members of our photographic society more than seven months ago, and exhibited at the Franklin Institute in November of last year. Moreover, the instrument which I have been showing is binocular and stereoscopic, and adapted to make the apparent area of the images four times greater than with the construction figured in your journal, and also that my chromogram is in a single piece, folding.

Very truly yours,

February 18th, 1895. FRED. E. IVES.

SOME NOTES ON THE EARLY HISTORY OF PHOTOGRAPHY.

PHOTOGRAPHY (φῶς), or the art of producing copies of objects by the action of light, may be said to be of but recent origin. The only observations of the ancients on the chemical properties of light, as affecting color, that have been handed down to us, are the questionable ideas that some precious stones, more particularly the amethyst and opal, lost their brilliancy by prolonged exposure to the sun. The alchemists, in their searches after the "philosopher's stone" and the "elixir vitæ," made and recorded the discovery that a peculiar combination of silver with chlorine, termed "horn silver," became blackened by exposure to light, but no attempt appears to have been made to utilize the discovery for the purpose of obtaining images.

In 1772 Petit noticed that solutions of nitrate of potash and muriate of ammonia crystallized more rapidly in the light than in the dark. Dr. Hooper, in 1775, in his "Rational Recreations," gave the following for writing on glass by the rays of the sun: "Dissolve chalk in aqua-fortis to the consistence of milk, and add to that a strong dissolution of silver. Keep this liquor in a glass decanter, well stoppered; then cut out from a paper the letters you wish to appear, and paste the paper on the decanter, which must be placed in the sun in such a manner that its rays may pass through the spaces cut out of the paper and fall on the surface of the liquor. The part of the glass through which the rays of the sun pass will become black, and that under the paper will remain white. You must observe not to move the bottle during the operation."

Scheele, in his "Traité de l'Air et du Feu," 1777, says: "It is well known that the solution of silver in acid of nitre, poured on a piece of chalk and exposed to the rays of the sun, becomes black. The light of the sun reflected from a white wall has the same effect, but more slowly; but heat without light has no effect on this moisture." And on another page he says: "Fix a glass prism at the window, and let the refracted sunbeams fall on the

floor; in the colored light put a paper strewed with luna cornua, and you will observe that this horn silver becomes black sooner in the violet ray than in any of the other says." Senebier repeated these experiments, and found that chloride of silver darkened in the violet ray in fifteen seconds, while the action of the red ray needed twenty minutes to produce the same shade. He also experimented on the influence of light in bleaching wax.

In the "Philosophical Transactions" for 1798 appeared a memoir by Count Romford, entitled, "An enquiry concerning the chemical properties that have been attributed to light," showing that the effects produced upon metallic solutions by light could also be attained by heat—a position controverted by Hartup in a communication to *Nicholson's Journal* in 1802.

In 1801 Ritter proved the existence of rays a considerable distance beyond the visible spectrum, which had the property of speedily blackening chloride of silver. M. M. Berard, Secbeck, Berthollet, and others directed their attention to the peculiar conditions of the different rays in relation to their luminous and chemical properties. Dr. Wollaston pursued and published an interesting series of experiments on the decomposition effected by light on gum guiacum. He found that paper washed with a solution of this gum in spirits of wine had its yellow colors rapidly changed to green by the violet rays, while the red rays had the property of restoring the yellow hue. Sir H. Davy observed that the pure colored oxide of lead became, when moistened, red by exposure to the red ray, and black by exposure to the violet ray, and that green oxide of mercury, although not changed by the most refrangible rays, speedily became red in the least refrangible.

About the same period other experiments were being made on phenomena connected with solar radiations. Desmortiers published a paper entitled "Recherches sur la Dècoloration Spontanée du Bleu de Prusse," a translation of which was subsequently published in "Nicholson's Journal." Bŏckman, about the same time, observed that the two ends of the spectrum acted differently on phosphorus; and Naye published an observation he had made that crystals of red arsenic effloresced in the light.

The merit of being the first to create an artificial retina so sensitive as to retain the picture of an illuminated object is due to Wedgwood, the celebrated potter, who, with the assistance of Sir H. Davy, succeeded, in 1802, in obtaining pictures by means of a lens on paper and white leather, moistened with a solution of nitrate of silver. The leather is said to have shown the greater amount of sensibility, owing, as was supposed, to the action of matter used in the process of tanning upon the nitrate of silver. The process he adopted is described in a paper published in the journal of the Royal Institution under the following title: "An account of a method of copying paintings upon glass, and of making profiles by the agency of light upon nitrate of silver, with observations by H. Davy." The results thus obtained were not, however, satisfactory, as no means were known of rendering the pictures permanent.

In 1806, Vogel proved that the sun's rays changed the color of fat, and soon rendered it rancid, even though quite independent of the action of air. He also made some experiments on the influence of sunshine on ammonia and phosphorus, and on corrosive sublimate in solution.

From the time when the then insurmountable difficulty of fixing photographs checked the progress of Wedgwood and Davy, no discoveries appear to have been made until 1814, when Niepce, of Chalons-sur-Saone, entered on a series of experiments. His early attempts were unsuccessful, but after a lapse of ten years he became acquainted with Daguerre, and in collaboration with that gentleman succeeded in fixing pictures produced by a lens on metal and glass plates coated with resin, the pictures being afterwards engraved by a chemical process. Specimens, with a paper on the subject, were forwarded to the Royal Society of London in 1827, and some of them are now in the British Museum. The discovery was called "Heliography," or sun drawing, and the pictures, which required several hours of good sunlight for their production, were termed "heliographs." Niepce died in 1833, before the discovery by Daguerre of the process termed "Daguerreotype."

The Daguerrotype process was formally communicated to the

public by Arago, who, in 1839, read a description of it before the Academy of Sciences, but the process was not made known until six months later, when a bill was passed securing to Daguerre a pension for life of 6,000 francs, a life pension being granted also to the son of Niepce of 4,000 francs, with one-half in reversion to their widows.

The process was patented in this country by Miles Berry, to whom it had been communicated, and the following remarks appeared in the specification: "This invention or discovery relates to photographic drawing, or the spontaneous reproduction of images, pictures, or representations of nature by the action of light, that is, by the process or method now well known under the name of 'Daguerreotype.' I believe it to be the invention or discovery of Messieurs Louis Jaques Maude Daguerre and Joseph Isidore Niepce, junior, both of the kingdom of France, from whom the French Government have purchased the invention for the benefit of that country. This invention or discovery was fully communicated to me by a certain foreigner residing in France, on or about the 15th day of July, in the year 1839, with instructions to immediately petition Her Majesty to grant Her Royal Letters Patent for the exclusive use of the same in these kingdoms. This patent was sealed on the 14th August, 1839, which is some days prior to the date of the exposition of the said invention or discovery to the Frence Government at Paris, by Messieurs Daguerre and Niepce, according to the terms of their agreement."

In the same year (1839) Fox Talbot communicated to the Royal Society his discovery, and published an account of the process he had devised for preparing a sensitive paper for "photogenic" drawing. From the paper read before the Royal Society, it appeared that he had been pursuing his researches on the subject since 1834, and had published the results of his experiments in the *Philosophical Magazine*. Talbot obtained three patents for his improvements—in 1841, 1849, and 1851 respectively.

In 1838 Mongo Ponton described in the *Edinburgh New Philosophical Journal* a method of producing photographic

prints by applying to paper a mixture of bichromate of potass and sulphate of indigo. In this process the bichromate, the coloring matter, and the organic matter of the paper were the three materials, on the reactions among which, under the influence of light, the principle of printing in carbon or pigments depended. The prints produced by Mongo Ponton appear to have been the first permanently fixed photographs, and this gentleman may be considered as the discoverer of photography, for the Talbotype and the Daguerreotype processes were not published until the following year (1839).

Various improvements were from time to time introduced, the most important being the employment of compounds of iodine and bromine, and iodine and chlorine, instead of the former substance only. The sensibility of the plates was by this means considerably increased, so that, under favorable circumstances, portraits could be produced in a few seconds. The application of chloride of gold to the surface of the silver plate, after the picture was finished (suggested by Fizeari), gave a greater degree of permanence than in those previously produced.

The art of photography on glass is of more recent date than either the Daguerreotype or Talbotype, but its principles were similar to those of the letter. In consequence of the inequality of the texture of the photographic paper, it became necessary to obtain a more homogeneous medium for the reception of the negative Talbotype picture. Glass and porcelain were therefore employed with great success, prints from such plates being of an exquisitely beautiful character. In order to render the surface sufficiently retentive of the sensitive coating of silver, the plates of glass were covered in the first instance with a thin layer of the albumen of egg containing a few drops of a solution of iodide of potassium. The sensitive washes were then applied, and the plate exposed to the lenticular image in the camera, the picture being developed in the usual manner.

Dr. Woods introduced the use of iodide of iron in his process of the "catalissotype," and Hunt employed sulphate of iron in his "ferrotype"—both processes of extreme sensibility. The

"chromotype," "fluorotype," and Hunt's other processes are fully described in his "Researches on Light."

Naturally colored photographs were introduced by Niepce; by voltaic agency he produced upon the surface of a silver plate a dark purple coating of oxide of copper and chloride of silver, and this was "eaten out" in colors when exposed to the influence of solar radiations. His process, however, failed to give permanence to these reproductions of colors.

The steroscope was the invention of Professor Wheatstone, being an optical instrument in which two photographic pictures, taken under a slight difference of angular view, were so placed that one only could be seen by each eye. Two images were thus conveyed to the brain as in ordinary vision, and uniting, these exhibit the objects in relief. Patents were granted to Rollason in 1855, Pretsch in the same year, Poitevin (two) also in the same year, Maw (in connection with cloths and fabrics) and Cornicles in 1856, and Cheatham (for the application of photographic pictures to metal and other surfaces) in 1857.

The rapid and important strides in the progress of the art during the last decade are an evidence of its great utility, not only for its more general uses, but from the fact of its being an important factor in connection with the arts and manufactures, more especially, perhaps, in regard to printing; and photography like electricity may be said to be in its infancy, having as important a future before it as the last named.—*W. H. S. in Photography.*

A Missing Photographer.—Mrs. Charles Fisk, Wonewoc, Wisconsin, would be glad to hear news of her son, Elmer Fisk, who disappeared January 28th, 1893. On that date he is supposed to have left Cashton, Wisconsin, to proceed to his home, being in delicate health, and has not since been heard of, although inquiries about him have constantly been made. He is 5 feet 11 inches in height, weighs about 160 pounds; complexion, light; smooth face; trade photographer. If anyone has any information regarding him, he will greatly help to relieve a mother's anxiety by writing to her at the above address.

SHE DIDN'T LIKE IT.

THEY were artists, and as the beer passed around the table and the fragrant pipe smoke eddied among the hangings of the studio, they told yarns of hard times in the beginnings of their several careers when "pot boiling" work, at low prices, left them little time for manufacturing fame.

"The queerest job I ever got," said one, "came from a countryman up in Orange county. I had been fishing and painting on the Ramapo the summer before, and doubtless he had seen me at my easel in the woods somewhere, and had been greatly impressed by the spectacle, for, though I had never met the man to my knowledge, he wrote me in a tone of wonderful respect.

"He said he wasn't rich, but was going to marry a rich girl in the neighborhood, and meant to do the courting business up brown. So he wanted his picture painted, and didn't care a whoop about the expense so long as the picture was done up in good shape. He said he couldn't come down to 'sit,' but sent a photograph. He added that if I made the mustache a little longer and the cheeks a little plumper than in the picture the likeness would be bang up, and that was the kind of a one he wanted, for his girl was particular.

"Well, I did the thing up in the latest style, and spent a good deal of time over it, for I thought I might work up a little portrait business up that way if the job was a good one, and every dollar counted in those days. I flattered myself that I had followed his injunctions and still had preserved the spirit of the likeness, and sent it along with a rather stiff bill.

"The picture came in the course of a week, and with it a letter in which my patron said he didn't mind the price a bit, but his girl didn't like the picture—she said it didn't look enough like him. Would I try it again?

"I tried it again, and this time I stuck to the photograph like a leech, and was satisfied when I got through that there could be no question of likeness in that portrait. I sent it along, with the bill, of course, and awaited a check.

The check didn't come, but a couple of weeks later a countryman climbed up four flights of stairs and entered my studio all smiles.

"'Well, old man,' said he familiarly, 'do you know me?'

"'Know you?' I said, 'I don't know you from Adam. To the best of my knowledge I never saw you before.'

"He looked disappointed, and said I ought to know him, for I had painted his portrait twice. Then he told me he was my countryman from Orange county, and that his girl didn't like the last picture, either, and so he had concluded to come down himself.

"'But you don't look the least bit like your photograph,' I exclaimed.

"'Well, you see,' he said, looking a bit foolish, 'that wasn't my photograph. I never had no photograph taken, but ma and pa, and, in fact, all the folks up my way, say I'm the living image of my brother, except that my mustache is a bit longer and my cheeks plumper. So I sent you his photograph and told you how to fix it up.'

"Well, when I got through laughing I took a sketch of him, finished it up in color a day or two later, and sent it on. The check came along this time, so I presume that at last his girl was suited."—*N. Y. Herald.*

Table Talk for February opens with an interesting and instructive article on "Mushrooms and Toadstools," by Julius Palmer, the renowned authority on such subjects. This is followed by the usual departments in which this month the receipts alone number fully three dozen and in which are also given the freshest notes on fashion, serving, and all questions of interest to the housekeeper and homemaker. There are also the menus for the month, a lesson in Dietetics, the Washington letter on Society's doings at the Capital, and an article, "Over the tea-cups," a bright readable resumé of the latest popular books. Our readers can see a sample copy by addressing Table Talk Publishing Co., Philadelphia, Pa.

The Editorial Dropshutter.

Do not be misled.—At the present time there is more or less rivalry between the makers and agents of the various flash apparatus that have been invented for studio or professional uses.

It is agreed upon all sides that the use of an artificial illuminant will play an important part in the future for studio work, either for night portraiture or to supplement dull daylight, and that the professional flash-light apparatus will be an indispensable accessory to every well-regulated gallery.

The new order of things has brought out a number of apparatus, some quite expensive and complicated, which have to compete with others that are cheaper and far more practical.

This latter fact has brought forth, in the *Professional Pointer*, a paper published by the agents of the former, an article under the title of "Don't be Misled," in which the writer, carried away by his zeal or ignorance, gives the following foolish advice. After setting forth the advantages of the machine in which they are peculiarly interested, they virtually acknowledge the weakness of their argument by asking the photographer to try the following experiment:

"If any of our friends think that the flashing of a string of powder from a trough, say four feet long, is of any value, let them try a better scheme than they have yet seen introduced in any of the cheap flash machines; better because it may be adapted to any length of flame desired, and the machine will cost practically nothing. Take a board any length you want, say from one foot to twenty feet, and let this board be, say, twelve inches wide. One inch from one side of the board place a series of pointed nails about six or eight inches apart, stick onto these nails a coil made of ordinary cotton, which may be about one inch in diameter; saturate this cotton coil with alcohol; then, say eight or ten inches from the cotton, pour your flash powder in a stream the whole length of the board; now light your alcohol-saturated cotton the whole length of the board, press your bulb, and at the same time turn your board up on edge to allow

the powder to fall into the flame, and you have a flash that will beat any of the cheap flash machines."

The astute writer evidently forgets to advise any one trying this experiment to obtain an extra insurance on his gallery before trying the experiment.

However we do not think there is a single regular professional photographer who would be so ignorant as to try the above experiment. The article is well headed, "Do not be Misled."

No, Mr. Pointer, no professional will be foolish enough to be misled into trying your experiment, but he will look around and buy the best apparatus he can get and which will give the best results for the least money.—*Selah.*

Fine Flash-light Portraiture.—We have received several fine specimens of studio work made by J. R. Cummings, of Wilmington, Delawaue, with the McCollin professional flash lamp. One, a group of a guitar and mandolin club, 16x20, was especially successful, it was taken while the young men were playing. Several large heads on the same size plate were equally fine. Mr. Cummings, who is one of the leading artists in Delaware, well merits the extended patronage he enjoys. One of our illustrations last month, also a flash-light effect, was a fine specimen of a graceful and artistic posing. Our half-tone reproduction, however, failed to do the original justice, as it was printed during the extreme cold snap of last month. The original can be seen at the publication office.

The Truth of It.—Our esteemed Chicago contemporary, *The Photo Beacon* for February, publishes the following notice in his trade column, which is slightly misleading: "Speaking of Buchanan reminds us that Bigelow says that he believes Luxo is the best flash powder on the market, and Bigelow ought to know." Now the fact is that Bigelow does know something about flash powders, as the following letter from him plainly shows:

ST. JOSEPH, MO., October 6th, 1894.

THOS. H. MCCOLLIN & CO.:

Messrs.: In regard to your inquiry I will say, I advise the use of "Blitz Pulver" with our machine, and I have used no other powder in getting out our sample negatives. It operates in our machine with unvarying success. Very respectfully yours,

L. G. BIGELOW.

Lens Work for Amateurs, by Henry Orford, with two hundred and thirty-one illustrations. MacMillan & Co., New York. Sample copy received from John Wanamaker, Philadelphia. This little work contains all possible information upon the photographic lens, how they are calculated, made and finished. The various curves are explained, also practical methods for testing lenses. Several chapters are devoted to prisms and their uses. All this information can be obtained for the paltry sum of eighty cents.

Fire in Pach Brothers' Photographic Studio. — Many thousands of persons who read about spectacular fires in the newspapers and complain that they never get the chance to see one had the opportunity of their lives recently, and the crowd of men and women that stood in Broadway and Fifth avenue for two hours, filling several blocks each side of Twenty-second street, was all that the police could hold in check. The fire was in the big six-story gray sand-stone building that occupies the north end of the block bounded by Twenty-first street, Broadway, Twenty-second street and Fifth avenue. The blaze was confined to Pach's photographic gallery on the top floor of the Broadway front, the well-directed energy of the fireman keeping it from spreading further. And after the fire was under control, water caused losses to the big firms on the floors below that are estimated to amount to somewhere in the neighborhood of $200,000. The damage to the building itself will probably not amount to more than $5,000. Pach Brothers were completely burned out, and their negatives of twenty years' collection are wholly destroyed. The fire originated in the negative retouching-room of Pach Brothers' establishment at a quarter after one o'clock, and its cause is a mystery. The room is on the Broadway corner, where light is plentiful, and there happened to be no one in there at the time except one of the operators. According to the statement she made afterward to Gotthelf Pach, one of the firm, the first she knew of the fire was seeing a thread of flame creeping up the window curtain.

There were thirty employees at work at the time, for the rooms constitute the general finishing department for all of Pach Brothers' branches in college towns. Some of them were on the roof where solar printing was going on. Six of the employees were women. Besides that there were fifteen or eighteen customers in the place, including a dozen Columbia College boys, who were sitting for a group. The dozen college boys were the ones who gave the alarm to those below. Gotthelf Pach said that his firm had lost everything it possessed by fire, including the negatives made in twenty years. The

firm does an immense business amomg the colleges, including Yale, Princeton, Harvard, West Point and Annapolis, and all its stock negatives of this nature were destroyed. The total loss would amount, Mr. Pach said, to $20,000, of which about $10,000 was covered by insurance. He added that it had proved quite impossible to get insurance for more than $10,000, and for that the firm had paid four and five per cent. Companies did not care to insure photographers, but anyway, the building was not in favor among insurance companies, and all the occupants had had great trouble in getting insurance except at exorbitant rates.

Cartography Supplemented by Photography.—The officials of the Philadelphia Traction Company have had prepared a large map showing the lines owned, controlled and operated by the company. Surrounding the map there are photographs of the power stations, and cars, and several tables giving the mileage of the different lines and data concerning the power stations. The whole thing is handsomely framed and is intended for the information of the stockholders and officers of the company. There is an immense amount of information condensed into the map, pictures and tables, all of which is presented in such a form that it can be grasped at a glance and an excellent idea secured of the vastness of the Philadelphia Traction's system and the great value of its rights and franchises at present utilized and awaiting development. A more comprehensive idea of the company's great property could probably not be presented. There is a series of photographs of each of the electrical power stations, showing the exterior, the interior of the engine-room and the interior of the boiler-room. The photographs of cars show the company's standard closed and summer styles, and there are also pictures of a snow-plow, sweeper and tank-car for sprinkling the streets over which suburban cars run. Other pictures give an idea of the centre and side pole construction. There is also a good photograph of one of the switch-boards, and the information that there are 222 feeders running from the four power stations.

The optical works of C. P. Goerz, Schoeneberg near Berlin, the maker of the Double-Anastigmates, have just finished the twenty-thousandth photographic lens made in this workshop.

New Dry Plate Factory.—We received a cordial invitation to attend the formal opening of Wuestner's New Eagle Dry Plate works, Jackson Place, Jersey City, N. J. The factory was thrown open for

inspection from 2 p.m. until 10 p.m., Thursday, February 14th. We regret our inability to be present on the occasion.

California Camera Club.—Wednesday evening, February 6th, 1895, a triangular demonstration was given by Doctors Passavant and Goodrum, and Professor Lange, exponents of metol, pyro, and eikohydro developers. It proved an exceedingly interesting demonstration—in fact it was a battle of the giants.

The *Photographic Review of Reviews* with the January issue commences its fourth year. Several alterations have been made, notably the arrangement of literary matter under "subject" as distinct from "source," and printing the illustrations in a different color to the matter. The *Photographic Review of Reviews* is one of our most valued exchanges, sprightly, well edited, and ever welcome.

Their Mail Stopped.—Under instructions from the Post-office Department, Postmaster R. W. Sayre, of Atlantic City, N. J., on February 19th, refused to pay postal orders presented by the Star Pastel Company, of Atlantic City, and also seized all mail addressed to the firm. The registered letters, of which there are a great many, will be returned to the post-offices from which they came, unopened, as well as all other letters. When the order arrived there were several thousand letters of the firm in the post-office. They were all detained.

The company's method of doing business was to mail alluring circulars inviting people to send $1.50 for an art cabinet of paints and brushes, together with a newly-invented system for the rapid reproduction of photographs and pictures. This was further supplemented with an offer to furnish purchasers with work, which they would pay them handsomely for if properly executed. The company sent out as many as 10,000 letters a week.

Since the concern started in business Mayor Stoy and Chief of Police Eldridge have been bothered with letters from every section of the country inquiring as to the business standing of the company. The inquirers were uniformly advised to keep their money.

The reputed officials of the company were George Gould, Manager, and Mr. Lorraine, Secretary.

God helps those that help themselves.

Photographic Hints and Formulæ.

Anthion-Schering.—The attention of the photographic public has been called to a newly-discovered hypo-eliminator under the name of "anthion," which has recently been introduced for the removal of fixing agents from photographic pictures. Complaints are constantly heard of incomplete elutriation of the sodium fixing agent from photographic pictures and consequent discoolration of the photographs. Chloride of lime and eau de javelle which have been repeatedly recommended for destroying the last traces of the fixing agent, hyposulphite of sodium, and consequently shortening the elutriation process, have only been attended with slight success on account of their extremely inconstant composition. They have also other drawbacks. Anthion is excellently adapted for rendering an excess of hyposulphite harmless by oxidation. The new eliminator is made by well-known Chemische Fabrik auf Actien, vorm. E. Schering, Berlin. It is patented in the United States, and is supplied in bottles of 100 grammes.

The following directions for use are issued by the makers, viz.:

The Solution.—Five grammes (75 grains) anthion are dissolved in one litre (one quart) of luke-warm distilled water. The solution keeps for at least one month.

(A). *For Gelatine Plates.*—(*a*). The plate (13x18 cm) (5x7 inches) or film, after fixing, is allowed to drain and then washed for about fifteen minutes in a dish with about 600 cc. (20 fluid ounces) water; it is then again allowed to drain. (*b*). Afterwards it is laid in a second dish with 200 cc. (7 fluid ounces) anthion solution, and again allowed to remain five minutes with occasional stirring. (*c*). The plate is then once more laid in 600 cc. (20 fluid ounces) fresh water, exactly according to direction *a*. (*d*). The operations *b* and *c* are repeated. The plate is then free from fixing soda. (In order to determine this, proceed as follows:)

Test. To be certain that all the fixing soda is completely destroyed proceed as follows: Several cc. (half to one teaspoonful) of the last washing water are poured into a test-tube and three or four drops silver nitrate solution (1 to 20) added. A white precipitate generally forms. If this gradually acquires a yellow tint, fixing soda is still present. In such a case operations *a* and *b* are to be repeated.

(B). *For Positive Paper Prints.*—The operations are carried out as under A, but instead of one plate five fixed copies (13x18 cm.)

(5x7 inches) are taken, allowed to drain one by one, then laid singly in water (vide *a*), afterwards in anthion solution (vide *b*), then again in water (vide *c*), again in anthion solution (vide *d*) and finally in water. It is important that the paper prints be frequently separated in the different baths. If the prints stick together, the solution does not penetrate and cannot act.

For large plates and prints it is not only necessary to use larger dishes but also more liquid, both anthion solution and water. An excess of anthion or of water is decidedly useful, but is less disadvantageous. The above directions for washing relate to those who have no continual flow of water at hand. If a continual flow of water is obtainable it is advisable to wash the plates or prints in flowing water for a quarter of an hour, and then dip in the anthion solution and test the result as above.

Celerite Paper.—A new paper under the name of celerite mat surface paper has been placed upon the market by a Chicago manufacturer. This paper differs from the other papers on the market, as it dispenses with gelatine and collodion in the manufacture as well as with gold and hypo in the manipulation.

The effect of the new paper is similar to platinum, and the specimens shown certainly leave nothing to be wished for.

It is claimed that the manipulation is as simple as making a blue print, while the paper prints in less than half the time of the older processes, offering greater latitude, the expense being no greater than making an ordinary blue print.

The following are the directions for working the celerite matt surface paper. Print under a negative in the sun until the deep shadows show quite plainly and the stronger half tones are barely visible. But before making any prints prepare your developing and toning bath as follows:

A.	Borax, powdered,	2 and one-fourth ounces.
	Rochelle salts,	2 ounces.
	Pure clean water,	1 quart.
B.	Bichromate of potash,	1 ounce.
	Pure clean water,	10 ounces.

Borax is the developing agent, and rochelle salts the toning agent, while the "B" solution is a restrainer, (acting like bromide of potass in a negative developer.)

1.–To 8 ozs. "A" add ¼ dram "B," for very strong negatives.
2.–To 8 " " " ½ " " for medium negatives.
3.–To 8 " " " 1 " " for flat, weak negatives.
4.–To 8 " " " 2½ " " to stop development.

These solutions will keep indefinitely, and may be used over and over, even after they become muddy and dark, with same results as when fresh and clear.

Now immerse your prints *without previous wetting* in the developer selected. Prints will instantly begin to gain strength and in two minutes will appear fully devolved.

After remaining in developer 20 to 25 minutes as directed, wash thoroughly in four changes of water, then immerse in the following fixing bath:

Concentrated ammonia, . .	2 drams.
Water, ...	1 quart.

Use only "stronger" ammonia U. S. P.

Prints are to be kept in motion, and after they have been in this bath five to seven minutes, change them to a fresh bath of same strength, where they should remain and be kept in motion by turning them over one by one for twenty minutes. If only a very few prints are fixed no change is required, otherwise the change is *very important.* After fixing, rinse thoroughly in four or five changes of water and mount while moist, or spread out on clean newspapers or pin up by corners to dry. *Do not put them between blotters to dry,* even the so-called "chemically pure" causes stains.

Brown or Sepia Tones.—Solution "A" is for black tones; for warmer tones prepare solution "C."

C. Rochelle salts, ...	1 ounce.
Ice or rain water, . . .	10 ounces.

Add one and one-half ounces of "C" to three ounces of "A" for brown tones, or use equal parts of each for sepia. You can get any degree of warmth you wish by using more of "C" and less of "A." If your tone is not warm enough to suit, add more "C." You must use "B" with combined "A" and "C" exactly the same as for "A" alone.

The Relief of a Picture on a Gelatino Bromide Film.—In treating on the subject of the relief exhibited by a gelatino-bromide film after exposure and development, the author points out that these properties, although largely utilized in the case of a bichromated gelatine film, have not been made of practical use in the case of a film sensitized by a silver salt. Any substitute for a bichromated film would be valuable owing to the liability of such a film to become insoluble. Various organic developers give different results in regard to relief. Pyrogallic acid, paramidophenol, and eikonogen all give an image with considerable relief, while hydrokinone on the other hand gives none. Herr Liesegang gives several methods by which relief may be obtained or increased, and observes that in a plate whilst wet, the exposed portions are in relief, but when the plate is dry the case is reversed.—*R. E. Liesegang.* (*Photo. Archiv.*)

On the Cause of the Fading of Albumen Prints.—After recalling the previous paper by Mr. Grundy and himself, Mr. A. Haddon states that the weight of metallic silver in the paper after washing and previous to fixation was ·0734 gramme per quarter sheet; after fixation and washing until the quantity became constant ·0037 gramme. A sheet of paper therefore measuring 22x17 inches has left in it ·0148 gramme of metallic sllver, roughly equivalent to a layer of silver over the entire sheet about one-fourteenth the thickness of gold leaf. The yellowing of prints he has heard ascribed frequently to the combined action of sight and moisture. Light he finds to produce a bleaching, rather than a darkening effect. The silver still remaining in the whites of a fixed and well-washed albumenized paper print, can be readily brought to view by treating it with chlorine water to convert the metal into chloride, washing out the chlorine, and brushing over the paper with a two-per-cent. solution of potassium nitrite, which acting as a chlorine absorbent renders the chloride more sensitive to light than it would otherwise be. On exposing the print to light under a negative, he readily obtained a fairly vigorous image. He remarks, that with such evidence of the existence in the high lights of albumen prints of a sufficient quantity of silver to produce such distinct images, is it astonishing that after a very short time they turn yellow and then fade? Effects that can be produced in a few seconds with a solution of sulphuretted hydrogen require many minutes when the gas is used, and months or years when the prints are exposed to impure air; but finally the silver must be converted into sulphide, which is the real cause in his opinion of the fading of silver prints.

Merssrs. Grundy and Haddon have been trying with various reagents to eliminate the last trace of silver from the albumen surface, but at present without success; the quarter grain of silver per sheet remains and will not be displaced. Potassium sulphocyanide is no better as a fixing agent than hypo, while both ammonium and magnesium chlorides leave much silver.

Preparation of Ferric Oxalate Solution for Hot-bath Platinotype.—The following new method of preparing this is given:—100 grammes of ammonia-iron-alum are dissolved in a little hot water, when dissolved it is diluled with cold water to 1 litre. Then 200 ccm. of a 1 to 2 solution added gradually as the effervescence is considerable. The precipitate is allowed to settle and the supernatant liquid tested to see whether a further precipitate is caused by adding more soda, if so, more solution of soda must be added. The clear liquid is carefully decanted, the precipitate shaken up with 1½ litres of water and again allowed to settle, and this process repeated till red litmus paper does not turn blue when placed in it for five minutes. A fine linen cloth is made into a bag, two filter papers folded and placed inside, and the precipitate collected; it is then washed twice with distilled water, allowed to drain for twenty-four to forty-eight hours. The precipitate can be easily separated from the filter and should be placed in a beaker capable of holding 300 ccm., and in a yellow light 17.6 grammes of finely-powdered oxalic acid added; after a few hours there will be almost complete solution of the iron, and it should then be filtered into a measure, its volume brought up to 187 ccm. and 2.3 grammes of powdered oxalic acid added. This solution is the so-called normal iron solution containing 20 per cent. ferric oxalate and 1.2 per cent. free oxalic acid, and 50 ccm. diluted with 4 ccm. of 5 per cent. solution of potassium chlorate forms the normal chlorate-iron solution.—*A. Lainer.*

Our Frontispiece.—We are indebted to Mrs. Halvey, the authoress, for the use of the portrait of her daughter, which appears as our frontispiece. The negative is from the studio of Mr. Harrison Krips, of Fifteenth street and Columbia avenue, Philadelphia. Mr. Krips is a well-known professional, and has, without doubt, the finest appointed studio up-town. He is noted for turning out the highest grade of photographic art work in the city north of Arch street. The specimen here reproduced is a fair average of his every-day studio work.

The wagon that makes the most noise is the empty one.

In the Twilight Hour.

Clean Conversation.—Wickedness is not wit, and filthiness is not fun. Moral baseness in conversation is suggestive of mental barrenness. There are foul-mouthed specimens of animalism who are ready to tell you the best story they ever heard. If you are so unwise as to listen, it generally turns out to be the worst story you ever heard.

Let no corrupt communication proceed out of your mouth, and let no corrupt communication proceed out of your neighbor's mouth, if you can help it.

An unclean incident is a reflection upon your mother; an insult to your sister; an indignity to your fair friend; and a dishonor to the magnificent manhood of America, of which you are a representative.

There are certain young men who regard the possession of a long list of questionable illustrations as a sure guarantee of popularity among young men. There are other young men, however, who would not stoop so low as to wipe their feet on such popularith.

There are young men who place so high a price upon kingly manhood and queenly womanhood that they instantly refuse to turn their mouths into sewers or their brains into cesspools, even though you should offer to organize the continent of North America into one glorious empire and crown them lords over all of it.

There are young men who believe that lips kissed by an idolizing mother are too pure and holy to bc cursed by the ulcerating germ of sensualism.

The fact that some very good men sometimes tell stories that are not so good as they ought to be simply proves that such men are not so good as such men ought to be.

An unclean incident is unclean, and therefore unhealthy; unhealthy, and therefore unmanly; unmanly, and therefore unholy; unholy, and therefore unchristian; unchristian, and therefore unkind, uncalled for, unnecessary, absolutely inexcusable, and beneath the dignity of any man who claims to be either a Christian or a gentleman.

There is nothing so sweet as a pure breath.

He who seeks to entertain his friends by kindling the fires of an unholy imagination is not less foolish than the individual who would set on fire the costly draperies of his drawing-room in order to amuse his guests.—*James L. Gordon, Sec. Boston Y. M. C. A.*

Wise and Otherwise.

Yea—verily.—Who hath care?

Who hath sorrow?

Who hath redness of eyes and giddiness of thought-tank, due to excessive vigils spent in worriment over uncollectible accounts, and wonderment regarding the whereabouts of the wherewithal which they must have on the morrow to meet a note which falls due then?

Verily, the photograper who trusts in the payment-promises of the average charge-it-please sitter.

The days will come and the days will go, but the aforesaid sitter cometh not, though the sheriff does.

On the other hand, who hath an easy mind, splendid digestion, sweetest sleep, and can look all men in the face without a tremor; whose bank account is large and growing, and who can always turn out good work because he can buy the best apparatus, materials, and the latest up-to-date accessories.

Verily, he who conducts his business upon a cash basis, and is a subscriber to THE AMERICAN JOURNAL OF PHOTOGRAPHY.

She wanted Revenge.—"Got a boat?" she brusquely demanded of a Detroit photographer as she walked in the other day.

"Yes'm."

"And a fish pole?"

"Yes'm."

"And a painted screen for a background?"

"Yes'm."

"Look like Cape May?"

"It does."

"Can you get a good-looking man to sit on the boat with me?"

"I can."

"Then I want six photos."

"Yes'm. Do you go the seashore this summer?"

"Naw! Dad's busted in business, and we've got to take cheap board on a farm. I want the photos just the same, you know. Want 'em to send to a girl friend who is sick and can't get anywhere this summer. She'll think I'm down there all right."

"Sort of an illusion, eh?"

"Sort o' revenge, rather. We were down there last season, and she stole my summer young man away. I want to make her believe I've got him back. Hurry up with the feller, and tell him he can sit with one arm around me and his moustache touching my ear!"—*Free Press.*

A STUDY OF A PHOTOGRAPH.

THE Rev. William C. Daland, of Westerly, Rhode Island, thus disposes of an officious visitor to that village, who used both the pen and camera to traduce, as it were, one of the most consistent and pious denominations in our common country.

Amateur photography is a pleasant and generally harmless pastime, but it has its perils. One especially subtle danger in the practice of this art, by which the unwary student is apt to be ensnared, is the temptation to use too freely the fatal kodak, the most fascinating form of the photographic craze. Hardly ever does one look upon a portrait of himself without a feeling of dissatisfaction, usually quite pardonable when the picture is the work of an amateur, however ardent or skillful he may be; and when the portrait is held up to the gaze of the world as an object of curious or scientific interest, the flattery to his vanity is apt to be tempered by a sense of personal injustice. One could even forgive the last mammoth or dodo a little irritation at seeing a likeness of himself shown in a musuem as a species rapidly approaching extinction.

A religious knight of the camera recently visited the Rhode Island village of Westerly, and viewing it as a typical sectarian village, and Seventh-day Baptists as typical sectarians, found there, as he told us in an article in the February number of the *Forum*, "a condition" now "passing away, which merits being photographed before it vanishes." His photograph reminds any one familiar with Westerly of the description of a crab said once to have been offered to the French Academy, wherein it was declared to be a "small, red fish that walks backward." A "condition" indeed exists in Westerly, but it is hardly the one exhibited in the article. Further, the writer has not given us a photograph, but an inaccurate and distorted picture, and whether the condition he intended or pretended to photograph is vanishing or not, the future will tell. Even as portrayed in the article it does not appear to be evanescent, and the real condition may possibly last as long as the memory of the photograph.

—*The Sabbath Recorder.*

BELLSMITH & POWER,

PHOTOGRAPHERS,

No. 500 Main Street.

BUFFALO, N. Y., February 19th, 1895.

MESSRS. McCOLLIN & Co.,

Philadelphia, Pa.

Gentlemen:—The "Flash Machine" you sold us is all right. I am very much pleased with it; have made several group pictures and interior views, and they are all very good.

We have one of Williams' Machine, and it is a nuisance; takes too long to get in shape. Then we never had any success with it, but with your machine it really is a pleasure; takes but a minute or two to get in working order. It is very simple and safe. No mistake, it is the proper thing, and when you come again I think we will buy another one, for in many instances in large places two machines would be a success.

I will send you a sample flash picture in a few days, I think will please you.

I am very respectfully,

L. W. POWER,

OF BELLSMITH & POWER.

BARGAIN LIST.—MAR., 1895.

PORTRAIT CAMERAS.

[For Lenses see Special List.]

1—11x14 Portrait Camera, with 8x10 attachment, . . . $60 00
1—8x10 D. S. B. Portrait Camera, 15 00
1—8x10 D. S. B. Portrait Camera, with Benster Holder, . . . 25 00
1—14x17 D. S. B. Portrait Camera, 40 00
1—5x7 Victoria Camera, 4 ¼-lenses, ... 18 00
1—5x7 Victoria Camera, ... 8 00
1—5x7 Victoria Camera, ... 9 00
1—5x8 Stamp Camera 15 00
1—5x8 Wet Plate Stereo. Camera, 3 holders, ... 20 00

VIEW CAMERAS.

1—4x5 New Model Improved Camera, ... $11 90
1—8x10 View Camera and Holder, new, ... 16 00
1—5x8 New Model Camera, . . 10 00
1—8x10 Eastman Reversible Back Camera 25 00
1—3¼x4¼ New Model Improved Camera, new, ... 9 00
1—6½x8½ Novelette Camera, new, ... 20 00
1—5x8 Blair Single Swing View Camera 15 00
1—6½ x 8½ American Optical Co.'s View Camera, ... 20 00
1—5x7 Blair Rev. Back Camera, new 25 00
1—5x8 Boston Rev. Back Camera, new 25 00
1—¼ Eclipse Outfit, ... 2 00
1—5x8 '76 Camera, Holder, Tripod, and Case, ... 23 00
1—5x7 View Camera, ... 7 00
1—5x8 Blair Rev. Back Camera, and 4 holders, ... 25 00
1—6½x8½ View Camera, 3 holders, ... 8 00
1—14x17 Ideal Camera, holder, tripod, Orthoscope lens and case, ... 100 00

HAND CAMERAS.

1—No. 1 Kodak, ... $10 00
1—A Ordinary Kodak, new, . . 5 00
1—5x7 Folding Kodak, new, . 55 00
1—4x5 Climax Detective, new, . 18 00
1—4x5 Turnover Detective, new, 15 00
1—4x5 Montauk Detective, new, 18 00
1—4x5 Hawkeye, Darlot lens, 3 holders, list $33, ... 18 00

ACCESSORIES.

1—8 ft. Show Case $12 00
—Large Oak Show Frames, each 5 00
1—8x10 Knickerbocker Stand, . 5 00
1—Corner Chair, Velvet, list $20, 10 00
1—Cooper Enlarging Bromide Lantern, 8 in condenser . . 40 00
1—11-in. Acme Burnisher. . . . 12 00
1—14-in. Eureka Burnisher, . . 18 00
1—15-in. Improved Eureka Burnisher 25 00
1—15-in. Acme Burnisher, . . . 20 00
1—Acme Print Trimmer, new, . 10 80
1—Baldwin Print Cutter, new, . 14 00
Lot of Picture Mats. Write for particulars.
1—14x17 Printing Frame, . . . 1 25
1—18x22 Printing Frame, . . . 2 50
1—11x14 Printing Frame, . . . 1 00
1—8x10 Printing Frame, ... 40
1—10x12 Adaptable Washing Box 3 00
1—14x17 Adaptable Washing Box 4 50
1—19x24 Deep Agate Tray, . . 5 00
2—6x8 Children's Backgrounds, 3 00 and 4 00
2—8x10 Bryant Backgrounds, 6 00 and 7 00
1—Wall Accessory, ... 4 00
1—Daisy Foreground, ... 4 00
1—Seavey Swiss Cottage 8 00
1—Osborne's Rock Accessory, . 10 00
1—Osborne's Pillar Accessory . . 15 00
Lot of second-hand backgrounds, 8x10 and 6x8, $5.00 to $9.00; write for particulars.
Peerless Varnish Pots, each . . . 40
Full line of Packard Brothers' Grounds *in stock*. Interiors $5.00; exteriors, $4.00.
3—Junior Ruby Lamps, each, . 60
1—4¼x5½ Negative Box 35
1—Walmsley Reversible Finder . 2 50
1—Card-size Burnisher 3 00
1—8x10 Porcelain Tray, Shallow, 41
1—8x10 Porcelain Tray, Deep, . 50
1—Dana Chair, new, ... 6 50
1—Divan, Small, new, ... 3 00
1—No. 2755 Rattan Chair, new, . 6 50
1—Magic Camera Stand, ... 7 00
2—22x28 Moorehouse Display Albums, each 10 80
1—Williams Flash Lamp, . . . 75 00
2—Air Brushes, complete, good as new, ... 25 00

Bargains in Lenses.

1—3 B Dallmeyer lens for cabinets, ... $130 00
1—½-Size Dallmeyer lens for cabinets, ... 50 00

1—8x10 Dallmeyer R. R. Lens, list $45,	30 00	1—10x12 Blair Orthographic,	20 00
1—5x7 Dallmeyer R. R. Lens,	25 00	1—5x8 Wide Angle Lens,	5 00
1—5x7 Euryscope Lens, Prosch Shutter,	35 00	2—6½x8½ Wide Angle Lens, ea.	8 00
1—¼ Voigtlander Lens,	9 00	1—11x14 Wide Angle Lens,	18 00
1—6½x8½ Gundlach Single Lens	3 50	1—Pair Waterbury Stereo Lenses,	4 50
1—5x8 Gundlach Star Lens,	12 00	2—R. R. Detective Camera Lens,	3 00
1—8x14 Gundlach Star Lens,	10 00	1—Set 1-9 Gem Lenses,	18 00
1—11x14 Darlot R. H. Lens, list $45,	30 00	1—¼ Gem Lens,	1 50
1—5x8 Darlot R. H. Lens,	15 00	1—4-4 Jamin Globe Lens,	12 00
2—4x5 Darlot R. H. Lens, each	10 00	1—¼ Holmes, Booth & Hayden,	4 00
1—16x20 Darlot W. A. Lens,	35 00	1—6½x8½ E. A. Single Lens,	5 00
		1—6½x8½ Single View Lens,	3 00
		1—5x8 Single View Lens,	2 50
		1—6½x8½ R. O. Co's. View Lens,	2 00

TERMS: NET CASH.

Lenses will be sent with privilege of trial.

THOS. H. McCOLLIN & CO.,

1030 Arch Street, Philadelphia.

A Plate

That has maintained the lead for years by being the most reliable, the most rapid, having the best printing qualities and being easy to work will prove to be

Economical

If you are looking to your own interest you

Use Cramer Plates.

BARGAIN.—Will dispose of my 5x8 Centennial Camera, Orthoscope Lens, holder, carrying-case, and tripod, which cost $45.00. Good as new. Sell for $30.50. G. B. P.,
Care AM. JOURNAL OF PHOTOGRAPHY.

SITUATION WANTED—By a fine retoucher, with twelve years' experience, able and willing to assist generally. Address ELMER D. KISTLER,
Allentown, Pa.

WANTED. — Photographs of Nova Scotia, New Brunswick, Prince Edwards and Cape Breton. I wish to complete my series of photographs of the Maritime Provinces by exchange or otherwise, and request correspondence with any amateur who has photographs of that region.
FRANK PRESBREY,
Care *The Forum*, New York.

WISH a position as Retoucheror General Workman. Wages moderate. Best references, etc. Ten years' experience in business.
HOWARD WALBRIDGE,
Pottsville, Pa.

"IMITATION is the sincerest flattery." Why are there so many inferior imitations of BLITZ PULVER all claiming to be as good. Draw your own moral. A word to wise, etc.

TO LEASE.—A Gallery having fourteen years' established business, all modern improvements. Opposite P. O. Only first-class parties need apply.
E. F. PFLUEGER, Akron, Ohio.

AN HONEST steady young man wishes a position as "all around man." Please address GEORGE SERUSET, 103 Charles Street, Allegheny City, Pa.

SEE the new A, B and C Premo Hand Cameras, $12, $15 and $20. Latest and best. We have a full line of Cameras made by the Rochester Optical Company in stock, and invite you to see them. Sizes for amateurs and professionals. New lists now ready, free.
THOS. H. MCCOLLIN & CO.,
Selling Ag'ts for Rochester Optical Co.,
1030 Arch St., Phila.

BLITZ PULVER

for flash light work is *on top* and likely to stay there.

BICYCLE.—I have for sale a Model 34 Columbia Bicycle, drop handles, rat-trap pedals, weight 30 pounds. All in excellent order. Cost $150.00; will sell for $75.00, or exchange for good photo apparatus.
Address A. C.,
Care AM. JOURNAL OF PHOTOGRAPHY.

A BARGAIN—One of the leading galleries in Brooklyn, cheap for cash. Owner retiring on account of ill health. Or will exchange for gallery on Pacific coast. Address M. L. SMITH, General Delivery P. O., Brooklyn, N. Y.

WANT a situation for Retouching and Air Brush Crayon work; also assist in printing if desired. Experience successful. Best of reference.
H. D. LONG,
319 Summer St., Royersford, Pa.

SITUATION wanted by a retoucher, able to assist generally. Wages moderate. Permanent situation.
Address RETOUCHER,
732 Walnut Street, Allentown, Pa.

WANTED.—A situation as retoucher or general workman, 18 years' experience in all branches. Address
"RETOUCHER,"
625 Adams Ave., Scranton, Pa.

FOR SALE.—A Gallery in a city of 60000 inhabitants, well fitted, everything in first class order. Can be occupied October 1st. Price, $1,200. For further particulars inquire of
THOS. H. MCCOLLIN & CO.

BACKGROUNDS.—Now is the time to get backgrounds cheap. We have the largest stock in Philadelphia. A full line of Packard Brothers' 6x8 grounds always on hand. Interiors, $5.00; exteriors, $4.00. Bryant's 8x10 grounds, 20 styles, in stock.
See designs in this number of Extension grounds for light effects. 8x14 at $10.00. Cheapest and best made.
Now is your chance. Designs of these are ready for distribution to every photographer in the United States and Canada.
THOS. H. MCCOLLIN & CO.

KEYSTONE VIGNETTERS.—Simple, Economical, Durable. Endorsed by all practical printers as the best device for producing uniform vignettes. Send for circular.
THOS. H. MCCOLLIN & CO.

WANTED.—Portable house at once.
T. H. SWEENEY,
Care THOS. H. MCCOLLIN & CO.

POSITION wanted by first-class operator, retoucher, and manager. Four years a printer. References and samples. OBER,
Care of BRONSON, Bridgeport, Conn.

PHOTO GALLERY FOR SALE.—One of the best located galleries in Philadelphia, Pa., 210 N. 8th St. (opposite the Bijou Theatre). Doing a nice business. Reasons for selling. STARR, 210 N. 8th.

FOR SALE.—The leading gallery in San Jose, the Garden City of California, with 30,000 inhabitants. The State Normal School and Leland Stanford Jr. University in the immediate vicinity. Good country trade. Retiring from business. Cheap for cash. Address J. W. HYDE, 79 W. Santa Clara Street, San Jose, Cal.

FOR DECORATING YOUR HOME.—Send in your negatives and have window transparencies made from them. These are the most beautiful form of pictures you can get of your favorite negatives. THOS. H. MCCOLLIN & CO.

A GRAND OPPORTUNITY.—New building, the best in town. No opposition. In the live town of Elkton. Rooms fitted for the purpose. Don't wait to write, but come and see for yourself. J. J. PAYNE, Elkton, Md.

FOR SALE.—Fine studio, situated in central part of Pennsylvania, in town of 8,000 population, with surrounding population of 40,000 to draw from. One other gallery in the town. Reason for selling, going into other business. Price, $1,500. Address,
T. H. MCCOLLIN & CO.

WANTED—A situation as crayon artist, am first-class, ten years' experience. Address, CHAS. HAAS,
126 S. 12th St., Reading, Pa.

SITUATION WANTED—By first-class retoucher. Able and willing to assist generally. Wants a permanent situation, moderate salary. Address, "RETOUCHER," 35 West King Street, Lancaster, Pa.

PROFESSIONAL Photographers send for description of the Empire State Camera. Best and most practical view camera, at moderate prices.
THOS. H. MCCOLLIN & CO.,
Selling Agents.

FOR RENT.—Fine and well arranged photographic rooms on Corner of Maine Avenue and Jackson Street. Cheap rent, gas and fuel.
Apply to WM. D. MORRIS,
1165 Hampton St., Scranton, Pa.

FOR SALE.—A first-class gallery in Shippensburg, Pa. Price, $350.00.
F. A. SOUDERS, Chambersburg, Pa.

NOTHING succeeds like success! In this connection it is natural to think of *Orthoscope Lenses*. There must be some reason for the extraordinary run on these, and if the reason occurs to you perhaps you will find it to your interest to be more familiar with them. Circulars mailed on application. We have added to the popular Rectilinear Series a 6½x8½ at $18.00, and a 10x12 at $25.00. Full line of all sizes in stock.
THOS. H. MCCOLLIN & CO.,
1030 Arch St., Philadelphia.

FOR SALE.—Well fitted and furnished gallery, in a town of 15,000 and near towns amount to 35,000. Price of cabinets, $3.00 to $5.00 per doz. Reason for selling, change of business. Apply
THOS. H. MCCOLLIN & CO.,

GEORGE MURPHY,

.....PHOTO SUPPLIES.....

Wholesale and Retail, for PROFESSIONALS and AMATEURS,

57 EAST 9TH ST., NEW YORK.

Read "SNAP SHOTS," The Popular Photo Magazine, 50 CTS. PER YEAR.

SNAP SHOTS PUBLISHING CO., 57 East 9th St., New York.

SOLIO

Uniformity.

Solio emulsions are exactly alike. The tint of the paper on which Solio is coated never varies a shade—we won't use paper that isn't just right; we won't use an emulsion that isn't up to the highest standard. Our factories are so large that we are never forced to use goods in an "emergency" that are "just a little off."

Emergencies don't occur with us. With duplicate engines and boilers, a duplicate manufacturing plant and capital which permits us to carry an enormous stock of raw paper, a steady and uniform supply of Solio is insured. That's one reason why Solio customers stick. They have learned that it is economical to use a paper that's "always alike."

EASTMAN KODAK CO.

Sample package and print, cabinet size, postpaid for 10 cents.

Rochester, N. Y

LOSS FROM BREAKAGE

And from spoiled plates in making negatives for large portraits, often eats up the profits. Risk, trouble and expense are saved by using small negatives and enlarging on bromide paper. Enlargements on Eastman's Enameled Bromide, when the sepia tone is used can hardly be distinguished from contact work on printing-out paper. They have a brilliant, glossy finish, fine detail and deep rich shadows. No other paper gives such perfect results with so little retouching.

A 44 page illustrated booklet telling how to improvise an enlarging apparatus and how to use our Bromide paper, free for the asking.

EASTMAN KODAK CO.

Eastman's Bromide Papers, Are the Standard

Rochester, N.Y.

The New 5 x 7

Folding KODET.

Superior to any 5 x 7 camera except our $75 Folding Kodak, and cheaper than most of them. Note some of its points:

Rising, Falling and Sliding Front;

Adjustable Swing Back;

Adapted to roll film and glass plates,

Reversible finder for vertical and horizontal pictures, with focusing plate for snap shots;

Ground glass with hinged door in back for fine focusing;

Improved shutter for time and instantaneous exposures;

Tripod Sockets for vertical or horizontal exposures.

Self contained when closed; handsomely covered with leather; front and bed highly finished mahogany and polished brass. Either single view or rapid rectilinear lens of splendid quality.

No. 5 Folding Kodet, 5 x 7, single view lens and one double plate holder, - $22.00

No. 5 Folding Kodet, 5 x 7, rapid rectilinear lens and one double plate holder, 30.00

Roll holder for film (not loaded), - - 12.50

EASTMAN KODAK CO.

Rochester, N. Y.

KODAKS and KODETS, $6.00 to $100.00. Send for Catalogue.

Benj. French & Co.

319 WASHINGTON STREET,
BOSTON, MASS.

Sole Importers and Agents of the Celebrated

Voigtlander & Son

EURYSCOPE LENSES.

Now constructed of the new and wonderful optical glass made by Schott, of Jena, Germany, viz. :

THE PORTRAIT EURYSCOPES,
EXTRA RAPID EURYSCOPES,
RAPID EURYSCOPES,

WIDE ANGLE EURYSCOPE,
Also the new and quick
SINGLE LANDSCAPE LENS.

Also the ever popular

Darlot Lenses

For all kinds of Portrait, Inside and Outside Photography.

OUR INITIALS (B. F. & Co) ARE ENGRAVED ON ALL DARLOT LENSES OF OUR IMPORTATION, AND ARE A SURE PROOF OF THEIR GENUINENESS AND SUPERIORITY.

AGENCY FOR TRAPP & MUNCH ALBUMEN PAPER.

*** *Our Illustrated Catalogue sent free on application.*

AMONG all the opticians of the world, the American firm,

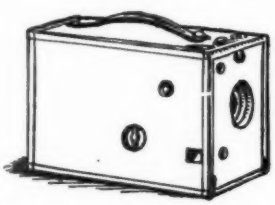
Bausch & Lomb Optical Co.,

stand alone in offering to their patrons a reliable means for testing and comparing lenses. When, in conjunction with Carl Zeiss, they first introduced the now well-known and popular

Zeiss Anastigmat Lenses,

of which they were made sole American licencees, they devised a test chart, which they sent out with each lens, giving the owner an opportunity to appreciate its advantages, and otherwise test its merits. The fact of issuing such a test chart leaves the impression which they no doubt had in mind, that they invite a thorough test of all their product. These charts are now placed in the rooms of many photographic societies, and are there used for comparison.

A Camera up to date



"Veni, Vidi, Vic."

Size of picture, 4x5. Model of '94.

The Sunart Magazine Camera

The only practical Magazine Camera. Holds 24 cut sheet films, already loaded in carriers for you. Send for catalogue.

SUNART PHOTO CO.,
ROCHESTER, N. Y.

For sale by all Photo Stock Dealers.

PRIZES ON PATENTS.

How to get $100 and Perhaps Make a Fortune.

We secure patents and to induce people to keep track of their bright ideas we offer a prize of one hundred dollars to be paid on the first of every month to the person who submits to us the most meritorious invention during the preceeding month. We will also advertise the invention free of charge in the *National Recorder*, a weekly newspaper, published in Washington, D.C., which has an extensive circulation throughout the United States and is devoted to the interests of inventors.

NOT SO HARD AS IT SEEMS.

The idea of being able to invent something strikes most people as being very difficult; this delusion the Company wishes to dispel. It is the simple things and small inventions that make the greatest amount of money, and the complex ones are seldom profitable. Almost everybody, at sometime or another, conceives an idea, which, if patented, would probably be worth to him a fortune. Unfortunately such ideas are usually dismissed without thought. The simple inventions like the car window which could be easily slid up and down without breaking the passenger's back, the sauce pan, the collar button, the nut lock, the bottle stopper, the snow shovel, are things that almost everyone sees some way of improving upon, and it is these kind of inventions that bring the greatest returns to the author.

The prize that we offer will be paid at the end of each month, whether the application has been acted upon by the Patent Office or not. Every competitor must apply for a patent on his invention through us, and whether he secures the prize or not, the inventor will have a valuable patent.

THE PRESS CLAIMS COMPANY.
JOHN WEDDERBURN, Gen'l Manager,
618 F. St., N. W., Washington, D.C.

P. S. The responsibility of this company may be judged from the fact that its stock is held by about seventeen hundred of the leading newspapers of the United States.

The Boston Background Painters

Have a lot of New Specialties to show for 1895. Useful and up-to-date features for use under the skylight.

Artificial Potted Palms, Chrysanthemums, Etc. Garlands of light Clustered Flowers. A line of neat new style stands to display same with. Some new styles of Wicker Chairs made after our own designs.

Some good advertising specialties it will pay you to introduce into your business. A new $6.00 Background Carrier, of which it is not a broad statement for us to say is the best on the market to-day. We think we know what a practical Carrier is, having used all forms of Carriers to display our goods. Our Carrier is simple and practical. No hitches in its manipulation. Nothing to get out of order, and is within the reach of all.

Lastly, we call your attention again to our main line. BACKGROUNDS of all styles at the most popular prices sold by any established concern. We have before called your attention to the fact that we mainly do our own work. Our profit is on our labor. This is why we can name you low prices on backgrounds, besides guaranteeing personal supervision of each order.

Send us your business card, and you shall have full lines of samples with prices.

PACKARD BROS. Roslindale, Boston, Mass.

Manufacturers of Backgrounds and Accessories.

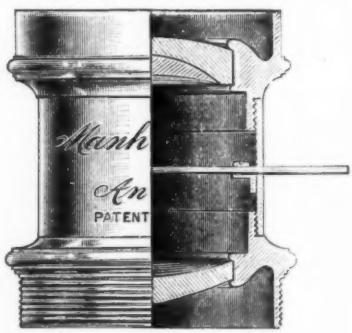
Our Lenses Easily Lead!

New Patent Anastigmat.

New Double Anastigmat.

New Rapid Wide-Angle Symmetrical (angle 115°).

New Portrait Lens.



These Lenses represent the highest perfection in optical construction, and are manufactured under the supervision of Dr. Hugo Schroeder, for many years Superintendent of the optical works of Messrs. Ross & Son, of London, Eng.

"NIGHT HAWK" CAMERAS for hand and tripod.

"FLORAGRAPH," our new Celloidine paper.

"TONO-COLLODIO" and "GELATINO," combined Toning and Fixing Bath for all papers.

MANUFACTURED BY

The Manhattan Optical Co.,

Send for Catalogue. **Cresskill, New Jersey.**

THE AMERICAN AMATEUR PHOTOGRAPHER

Is Accurately Focussed on the Wants of Amateurs.

PHOTOGRAPHY IN THE DARK ROOM AND OUT.

PHOTOGRAPHY FOR AMATEURS AND PROFESSIONALS.

Edited by ALFRED STIEGLITZ and F. C. BEACH.

A veritable encyclopedia of all the latest developments in the noble art of Daguerre, containing illustrations of the latest apparatus.

Abounding in technical and practical information for beginners and others, full of society news, and made especially interesting with sketches of photographic rambles and outings.

Reproductions of the best work of amateurs in each issue.

Special photographic competitions for amateurs and others, open to the world.

Published independent of a manufacturing house; its criticisms are unbiased.

SAMPLE COPY SENT YOU UPON APPLICATION.

20 cents per copy. $2.00 a year. *Outing*, regular price, $3.00. AMERICAN AMATEUR PHOTOGRAPHER, regular price, $2.00. Together for $3 50.

If your newsdealer does not have them, send to

THE OUTING COMPANY, Limited, - NEW YORK.

"New Special."

WESTERN COLLODION PAPER COMPANY'S best brand. There is no printing-out paper on the market that is giving more universal satisfaction than the K. K. It is just what the professional and amateur photographers have been looking for. Separate and combined toning and fixing formulas are given with every gross. ONE GRAIN OF GOLD WILL TONE ONE GROSS OF CABINETS with either formula. Send to the factory for a sample package (free). We make both pink and pense tint.

For Sale by all Dealers.

WESTERN COLLODION CO., Cedar Rapids, Ia.

EASTMAN KODAK CO., Proprietors.

A. M. COLLINS MANUFACTURING COMPANY.

would call the attention of Dealers in Photographic Supplies to their superior facilities for the manufacture and distribution of Photographic Cards, claiming that they have always in stock, or are prepared to make promptly to order, a greater variety and much larger quantity of Cards of superior quality than any other establishment in this or perhaps any other country.

Warehouse:

No. 527 Arch Street, Philadelphia.

Ask for the Gundlach Optical Co.'s

New Shutter. It sells at half price.

The happy medium between Collodion and Gelatine.

RELIABLE ARISTOTYPE PAPER.

It has no equal for Fine Definition and Water Proof Finish.

The "Eclipse" Aristotype Paper.

"CUT RATE" GUARANTEED FIRST CLASS. CHEAP ONLY IN PRICE.

TRIAL OFFER.

As an inducement for every Photographer to give our paper a fair trial; and as the ordinary sample package of a few sheets is an insufficient test, I make this offer: I will deliver free, upon receipt of price,

1 GROSS CABINETS, · · $1.00.
OR
2 GROSS CABINETS, · · $1.80.

"Reliable" and "Eclipse" are insoluble—will stand boiling water. Terms, cash or C. O. D. Order direct.

E. A. GILBERT,
SOLE MANUFACTURER, JAMESTOWN, N. Y.

To the Professional and Amateur Photographers.

Are you perfectly satisfied with the plates that you are now using? Can you get the detail in shadows and softness in your negatives necessary for good work on the new Aristotype papers now in the market? If you cannot do not fail to try the **American Dry Plates.** Many of the professional and amateur photographers in the country are using them with great success. It will cost but little to try them and you may like them better than the plates you are now using. Ask your Dealer for them and take no other. Made only by the **American Dry Plate Co.** Argentic plates for positives always in stock. Stripping and non-halation plates made to order.

AMERICAN DRY PLATE COMPANY

WORCESTER, MASS., U. S. A.

Maxima Aristotype Paper.

Superior to all others for giving pure whites, clear tones and brilliancy of finish. Will not curl, crack or frill. Standard prices: cabinets, $2.00 per gross. Made only by

UNITED STATES ARISTOTYPE CO.
BLOOMFIELD, N. J.

☞Sample free on application.

PHOTOGRAPHIC MOSAICS, 1895,

Is Now Ready.

CONTAINING A UNIQUE COLLECTION OF CONVENTION PICTURES OF 1894, PRINTED ON SUPERFINE COATED PAPER, ACCOMPANIED BY PRACTICAL PAPERS BY THE PRIZE-TAKERS.

ALSO A COMPLETE REVIEW OF PHOTOGRAPHIC PROGRESS, SELECTED ARTICLES BY WELL-KNOWN WORKERS.
A VERITABLE EDITION DE LUXE.

350 PAGES, 50 CHOICE ENGRAVINGS. PAPER COVERS, 50 CENTS; CLOTH BOUND, $1.00; POSTAGE FREE.

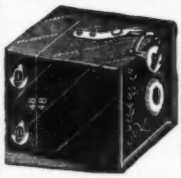
"The Best." EDWARD L. WILSON,
823 Broadway, New York.

The Little Band . . . of Blue.

THIS band, of blue (dark blue), on any book or periodical denotes that it is published by DAWBARN & WARD, Ltd. It comes from the same office as **The Photogram**; and, like **The Photogram**, is good, honest value. . . . . .

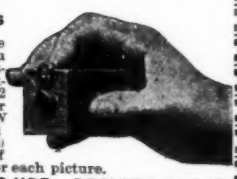
The Photogram, by the way, has improved immensely in 1895.

KOMBI CAMERA $3.50



IT IS NOT A TOY, BUT A SUCCESS

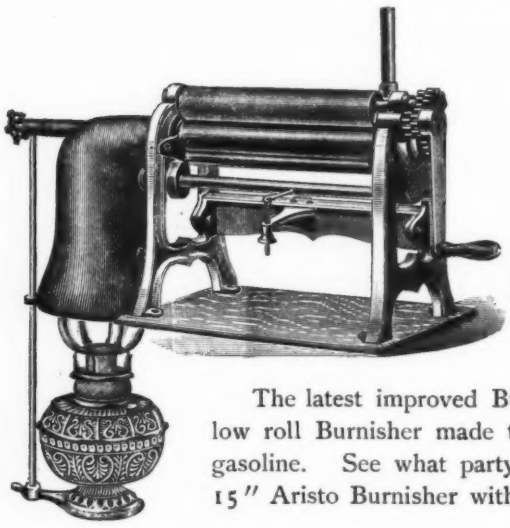
No matter how fine a camera you have you cannot do without the "Kombi." You can carry it in your pocket. Takes 25 pictures in one loading, snap-shot or time exposure. The size of Camera is 1¾ x 2 inches; weight 4 ounces. All metal, silver bronze finish. *ANY BOY OR GIRL CAN USE IT.* Every instrument guaranteed Indestructible. Strip of film (25 exposures) 20 cents extra. Cost for developing roll of film, 15 cents. Cost for printing 1 cent for each picture.



EASY TO BUY. EASY TO USE. DEALERS FIND IT EASY TO SELL.

A. C. KEMPER, 208 Lake St., Chicago.

Branches—LONDON: 36 Oxford-st., W. BERLIN: 10 Taubenstrasse, W.



ACME Aristo Burnisher

The latest improved Burnisher, and the only hollow roll Burnisher made that heats with oil, gas or gasoline. See what party says who has purchased 15″ Aristo Burnisher with oil heater:

ELMWOOD, MASS., February 5, 1895.

ACME BURNISHER CO.:

My customer likes it very much, I think I can sell several, as all who have seen this one work are highly pleased with it. Yours truly,

L. B. SHAW.

PHILLIPS & JACOBS,

(JAMES F. MAGEE & CO.)

622 RACE STREET, PHILADELPHIA.

MANUFACTURERS OF

Magee's Nitrate of Silver,
Magee's Chloride of Gold,

AND OTHER PHOTOGRAPHIC CHEMICALS.

Also Refiners of Silver and Gold Residues from Photographers, Jewelers, Book-Binders, etc.

N. B.—Directions for saving photographers' waste mailed to those who desire to give our methods a trial.

DON'T KEEP ON

Jabbing Holes Into Your Plates

BUT BUY A

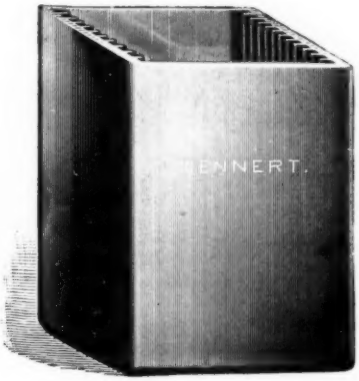
Gennert

Hard Rubber Fixing Bath

NO DIRT

NO SEDIMENT

NO STAINS



LESS RETOUCHING

LESS SPOTTING

LESS RESITTINGS

Save Your Hypo, Plates and Temper!

PRICE LIST

				Each
Holding 1 doz.,	3¼x4¼	Lant. Slide		$1.75
" 1 "	4 x5			2.00
" 1 "	4½x6½			2.15
" 1 "	5 x7			2.25
" 1 "	5 x8			2.50

			Each
Holding 1 doz.,	6½x 8¼		3.00
" 1 "	8 x10		3.50
" ½ "	11 x14		7.50
" ½ "	14 x17		10.00

G. GENNERT

Sole Manufacturer NEW YORK

A Word! A Meaning!

✳ HAUFF ✳

When Applied to Photographic Developers, Means

PERFECTION

HAUFF

Metol-Hauff excels in all kinds of work, and keeps indefinitely; 75 cents per ounce. . . . . .

Metol Cartridges—for the traveler—need only the addition of water and keep in all climates. $1.20 per box of six, making 80 ounces of developer. . .

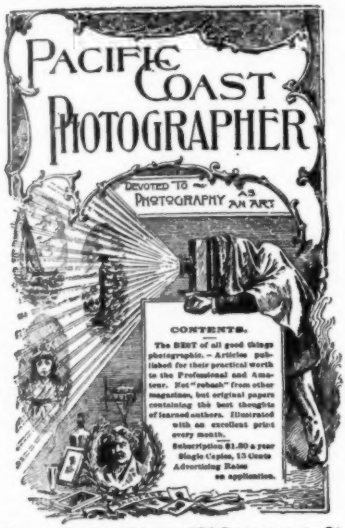
Ready Solution of Metol-Hauff—in concentrated form—is the best and most economical developer for the amateur; 8-oz. bottle (making 30 oz. developer) 35 cents; 15-oz. bottle (making 60 oz. developer) 60 cents.

HAUFF

G. GENNERT,

SOLE AGENT

24-26 East 13th St. NEW YORK


PACIFIC COAST PHOTOGRAPHER
DEVOTED TO PHOTOGRAPHY AS AN ART
CONTENTS.
The BEST of all good things photographic. – Articles published for their practical worth to the Professional and Amateur. Not "rehash" from other magazines, but original papers containing the best thoughts of learned authors. Illustrated with an excellent print every month.
Subscription $1.50 a year
Single Copies, 15 Cents
Advertising Rates on application.

Morgan Backus, Ed tor, 408 Eacramento St, San Francisco, Cal.

This is a Representative Journal of the Pacific Coast.

We give you a Magazine every month which will please you, and more than satisfy you to the extent of

$1.50 PER YEAR,

which is the subscription price.

Write for Sample Copy.

MORGAN BACKUS, Editor,
408 Sacramento Street, San Francisco, Cal.

. . . A Pointer . . .

TO THE PROFESSIONAL PHOTOGRAPHER:

The dull and yellowish light of the WINTER MONTHS increases the exposure for Plain Bromide Plates.

CARBUTT'S
Orthochromatic Portrait Plate

while good for Portraits in any season of the year yields best result in yellow light, and therefore is the best for *Winter* use in *Studios:* also for ELECTRIC and FLASHLIGHT exposures. They *Cost no More* than plain plates, require less retouching and need but a single trial to convince the most skeptical.

Order through your Dealer, and if he cannot supply you write to the Factory for address of nearest Dealer handling the KEYSTONE DRY PLATE. . . . .

Send to Factory for Catalogue containing reduced Price List.

MANUFACTURED BY

JOHN CARBUTT,

Pioneer Manufacturer of GELATINO-BROMIDE and ORTHOCHROMATIC PLATES in America.

KEYSTONE DRY PLATE AND FILM WORKS.

WAYNE JUNCTION, PHILADELPHIA.

IF WE SAY our Lenses are **better** than **any** European product you may doubt us.

IF WE SAY our Lenses are as **good** as the **best** you **may** believe us.

IF WE SAY compare our Lenses with those which **you** consider best we secure your confidence.

THEREFORE WE SAY we make every variety of Lenses. When you contemplate buying ask for one of **ours,** to compare with others. We give you a test chart for this purpose. If ours is **only** as **good** and **cheap,** you will keep it.

Bausch & Lomb Optical Co.,

ROCHESTER, N. Y. NEW YORK CITY.

If you want a Journal that deals with the plain, every-day life of the Photographer, read

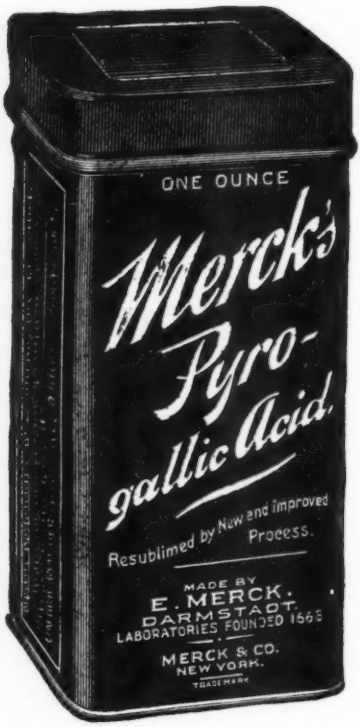
THE PHOTO-BEACON.

Single Copies, 15 cents. Yearly Subscriptions, $1.50.

THE BEACON PUBLISHING COMPANY,

15 Tribune Building, Chicago.

Merck's Pyrogallic Acid



will be found, upon comparison, to be superior in every respect to all other brands on the market. Its distinctive points of superiority are:

1ST.—ABSOLUTE PURITY

2D.—PERFECT CRYSTALLIZATION

3D.—IMMACULATE WHITENESS

4TH.—EXTREME LIGHTNESS

5TH.—MODERATE COST
(Its price is not higher than that of any other make.)

Merck's Pyrogallic Acid

produces the highest intensity to be desired in a photographic plate, and, at the same time, the finest detail in light and shade required for the most perfect printing negative.

Under ordinary precaution, it retains all its superior qualities undiminished for an indefinite length of time.

☞ WHEN ORDERING SPECIFY **"MERCK'S."**

TO BE HAD OF ALL DEALERS.

Orthoscope Lenses.

RAPID RECTILINEAR.

WIDE ANGLE.

RAPID RECTILINEAR, EMBRACING AN ANGLE OF 75°

	Size of Plate.	Focal Length.	Price.
No. 1, Rapid Rectilinear,	4 x 5	6 inches	$10.00
2, " "	5 x 8	8½ "	15.00
3, " "	8 x 10	11½ "	20.00
4, " "	11 x 14	16 "	30.00

WIDE ANGLE RECTILINEAR, EMBRACING AN ANGLE OF 90°.

	Size of Plate.	Focal Length.	Price.
No. 1, Wide Angle,	5 x 8	4¾ inches	$10.00
2, " "	6½ x 8½	6 "	15.00

Perfectly Rectilinear. Quick Acting. Every Lens Guaranteed

PORTRAIT SERIES.

Though but recently introduced, these lenses have given such universal satisfaction that we have no hesitation in recommending them as the best in the market.

They are specially adapted for Portraits, Groups, Landscapes, or Instantaneous Subjects, working sharp to the edge.

The stops for these are cut to the standard sizes of the British Photographic Society.

	Diameter.	Focus.	Size.	Price.
No. 3,	1 5/16 inches	7½ inches	5 x 7	$20.00
4,	1 11/16 "	10¼ "	6½ x 8½	25.00
5,	2⅛ "	12½ "	8 x 10	30.00
6,	2 11/16 "	19½ "	12 x 15	50.00
7,	3 3/16 "	23 "	16 x 20	75.00

WILL BE SENT ON TRIAL ON RECEIPT OF PRICE.

THOS. H. McCOLLIN & CO., Sole Agents,

1030 Arch Street, Philadelphia.

The Buffalo Argentic Paper

EVERY SHEET GUARANTEED

WITHOUT large advertising or expensive demonstrating is rapidly taking the lead.

MERIT alone can do this, and users of Bromide Paper who are ambitious to make the highest standard of work are asked to give it a trial.

RESULTS that have not heretofore been expected with this article are possible with this brand.

Its delicacy of half tones renders it particularly suitable for producing the warm or sepia tones. Formula sent free. Prints made for the trade.

The Hoover Patent Printing Machine can now be had, Price, $100.00.

Our goods are for sale through all stock houses, who will send you circular on application.

BUFFALO ARGENTIC PAPER CO.

204 and 206 CHESTER STREET, BUFFALO, N. Y.

PHOTO SPECIALTIES

Steinheil Lenses for Portraits, Landscapes, and Photo-mechanical Work

Steinheil Telephotographic Lenses (New)

Aladdin Dark Room Lamp

Safety Flash Igniter

Mica Plates (New)

Dresden Albumen Paper

Emulsion Gelatine—Lichtdruck Gelatine

Write for Catalogues and prices, naming specialties in which you are interested.

H. C. RAMSPERGER & CO.

180 Pearl Street, NEW YORK, N. Y.

THE PREMO CAMERA

MADE IN BOTH
REGULAR AND FOLDING STYLES
BY THE
ROCHESTER OPTICAL CO.,
Rochester, N. Y.

The PREMO is the latest, most compact and best camera of the kind yet introduced.

It has all adjustments for hand and tripod work, including swing back and sliding front.

Fitted with our new silent shutter.

Send for a descriptive catalogue.

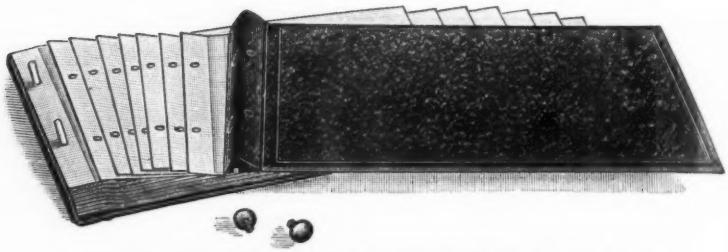
ROCHESTER OPTICAL CO.,

PHOTOGRAPHIC DEALERS SELL THEM.

ROCHESTER, N. Y.

THE Schaefer Album

FOR UNMOUNTED PHOTOGRAPHS.



THE ABOVE ENGRAVING REPRESENTS THE ALBUM AS IT APPEARS DETACHED.

Ask your supply house to show you our Album before arranging to mount your Photographs.

Amateurs are fast adopting the idea of squeegeeing their photographs, and in all cases attain much better results than is possible in mounting on card board.

You save the cost of mounts. You save the time of mounting.

You avoid the crockeling and warping of leaves, and the possibility of the surface of prints coming together and thus marring each other in the book, and in all you procure the handsomest and most complete album to be had.

DON'T FAIL TO INVESTIGATE. Squeegee your prints on a Tintype Plate, THEN BUY A SCHAEFER ALBUM for Squeegee Prints, and you will have the correct thing for preserving photographs of all kinds.

In this Album we give you all the advantages of the patent extensible back, and the general neat appearance of the well-known MOREHOUSE ALBUM, and at the same time the openings for all sizes of photo prints.

Send for Illustrated Price-List.

MOREHOUSE MFG. CO.,

218-220 Third Street, MILWAUKEE, WIS.

Alpha Aristotype Paper.

The latest and best.

Will keep in good condition for three months, and give CLEAR WHITES.

Will not curl, crack, or frill.

Does not require any special toning bath, but can be toned with any good bath used for albumen paper.

The increasing sale of this paper proves that it is a satisfactory article.

PRICE LIST.

3¼x4¼	per dozen . . .	.20	
4x5	" . . .	.25	
3⅝x5½	" . . .	.25	
4x6	" . . .	.25	
4¼x6½	" . . .	.30	
5x7	" . . .	.40	
5x8	per dozen . . .	.45	
6½x8½	" . . .	.65	
8x10	" . . .	.90	
20x24	per sheet . . .	.40	
20x24	" ¼ dozen . .	$2.25	
20x24	" ½ " . .	$4.00	
3⅝x5½	in gross packages . . .	$2.00	
4x6	" " . . .	2.00	

Send for a trial package, and you will use no other

THOS. H. McCOLLIN & CO.

SOLE AGENTS,

1030 ARCH STREET, PHILADELPHIA.

Our Celebrated Walpole Hypo.
(*Regular "Old Style" Large Crystals.*)

"New Process Walpole Hypo."
Trade Mark.
PUREST HYPO MADE.

Pure Walpole Sulphite Soda.

Products Unsurpassed.

ACETIC ACID,
ACETATE OF LEAD,
ACETATE OF SODA,
ALUM POTASH,
ALUM CHROME,
CARBONATE SODA,
COPPERAS,
IRON SULPHATE,
OXALATE POTASH,
POTASH CARBONATE,
SODA ACID SULPHITE.

Produce Fine Negatives.

Perfect Results.

Book on "Hypo" Free. **Photos** Exquisite.

We do not solicit retail trade. Where consumers cannot obtain our products from their usual sources of supply, we will furnish them on application; but it must be understood that in these cases we charge the full retail prices, and that cash must accompany the order.

Send 5 cents (stamps) for each sample or 25 cents (stamps) for 6 samples.

Walpole Chemical Co.,
Walpole, Mass.

GOLD MEDAL to Amateur Photographers.

Darlington's Handbooks.

"Sir Henry Ponsonby is commended by the Queen to thank Mr. Darlington for a copy of his Handbook."

Nothing better could be wished for.—*British Weekly.*
Far superior to ordinary guides.—*Lon. Daily Chronicle.*

1s. each, illustrated. Maps by JOHN BARTHOLOMEW, F.R.G.S.

BOURNEMOUTH and THE NEW FOREST.
THE ISLE OF WIGHT.
THE CHANNEL ISLANDS.
THE VALE OF LLANGOLLEN.
ABERYSTWITH, BARMOUTH, and CARDIGAN BAY.
THE NORTH WALES COAST.

Crown 8vo., cloth, 2s.

THE BIRDS, WILD FLOWERS, FERNS, MOSSES and GRASSES of NORTH WALES.

Llangollen, DARLINGTON & Co.
London, W. J. ADAMS & Co.

Study Law at Home.

It was the ambitious young man and woman on the farm, behind the counter, in the mill, in the lawyer's office, in the bank—the man and woman without the opportunity of a college education, that made this method of teaching law a necessity. We offer two courses—

1. A Course Preparing the Student to Practise Law;
2. A Business Law Course for Business Men and Women.

The tuition fee is small, the course complete, the result perfect. Nicely printed catalogues explain both courses. They can be had for the asking. Address

The Sprague Correspondence School of Law,
113 Telephone Bldg., DETROIT, MICH.

INTERCHANGEABLE VIEW ALBUMS

Each album contains 24 leaves, held in place by a cord, which ties on the inside of cover. Neatly bound in cloth with leather back and corners.

These are our own manufacture, and we use only the best quality No. 1 cards.

6 x 7 . .	$1.00
7 x 10 . . .	$1.35
10 x 12 . .	$2.25
11 x 14 . . .	$2.50

For those who desire to have foreign or other views mounted, we would state we do this work in the best manner. Send for estimates.

THOS. H. McCOLLIN & CO.,

1030 ARCH STREET, - - PHILADELPHIA

IF YOU WANT INFORMATION ABOUT

PENSIONS

Address a letter or postal card to
THE PRESS CLAIMS COMPANY,
JOHN WEDDERBURN, - - Managing Attorney,
P.O. Box 385. WASHINGTON, D.C.

PENSIONS PROCURED FOR
SOLDIERS, WIDOWS,
CHILDREN, PARENTS.

Also, for Soldiers and Sailors disabled in the line of duty in the **regular** Army or Navy **since** the war. Survivors of the Indian wars of 1832 to 1842, and their widows, **now** entitled. Old and rejected claims a specialty. Thousands entitled to higher rates. Send for new laws. No charge for advice. No fee until successful.

☞ This Company is managed by a combination of the largest and most influential newspapers in the United States, for the express purpose of **protecting their subscribers** against unscrupulous and incompetent Claim Agents, and each paper printing this advertisement vouches for the responsibility and high standing of the Press Claims Company.

TRY HALE'S SPECIALTIES

HALE'S TONEING POWDERS
30. 50 AND 75 CTS. PER PKG.

ACME BLUEING FOR PHOTOGRAPHIC PRINTS 25CTS PER BOTTLE

LUSTRE LUBRICATOR HAS NO EQUAL
25 CTS. PER BOTTLE

ERADICATOR FOR CLEARING YELOW NEGATIVES. 25 CTS. PER BOX.
FOR SALE BY ALL DEALERS.

MANUFACTURED BY
LONDON CHEMICAL Mfg Co. LONDON. OHIO.

PATENTS

CAVEATS, TRADE MARKS
COPYRIGHTS.

CAN I OBTAIN A PATENT? For a prompt answer and an honest opinion, write to **MUNN & CO.**, who have had nearly fifty years' experience in the patent business. Communications strictly confidential. A **Handbook** of information concerning **Patents** and how to obtain them sent free. Also a catalogue of mechanical and scientific books sent free.

Patents taken through Munn & Co. receive special notice in the **Scientific American**, and thus are brought widely before the public without cost to the inventor. This splendid paper, issued weekly, elegantly illustrated, has by far the largest circulation of any scientific work in the world. **$3** a year. Sample copies sent free.

Building Edition, monthly, $2.50 a year. Single copies, 25 cents. Every number contains beautiful plates, in colors, and photographs of new houses, with plans, enabling builders to show the latest designs and secure contracts. Address
MUNN & CO., NEW YORK, 361 BROADWAY.

McCollin's Perfection

BLUE PRINT PAPER

GIVES BRILLIANT TONES AND CLEAR WHITES.

It is coated on the finest photographic paper, and is as fine as Albumen paper. You do not know what can be made on a blue print unless you have tried it.

Put up two dozen in a package. *Send ten cents for sample.*

3¼ x 4¼,	per package,	.16
4 x 5,	"	.20
5 x 7,	"	.35
6½ x 8½,	"	.56
8 x 10,	"	.68

We also make all grades in *rolls* for *Draughtsmen's use.*

THOMAS H. McCOLLIN & CO.,

1030 Arch Street, Philadelphia, Pa.

PERFECTION BLUE PRINT PAPER.

We have for a number of years made a specialty of manufacturing a specially fine grade of BLUE PRINT PAPER for negative work.

This gives pure whites and fine half tones. It is prepared on the finest and purest plain paper made.

Put up in packages of two dozen sheets.

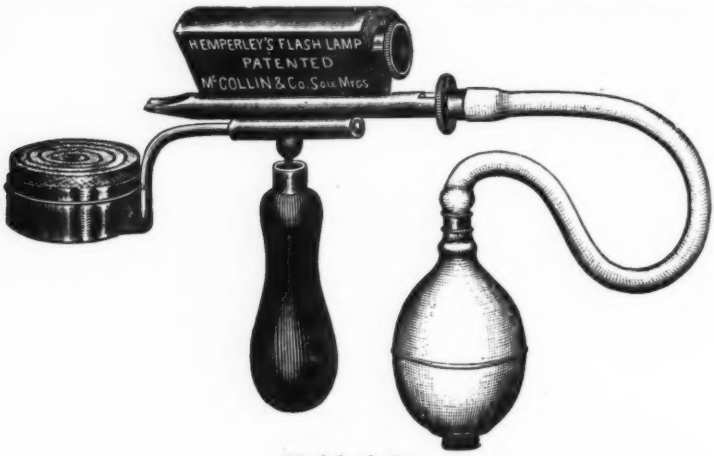
3¼ x 4¼	$0 16
4 x 5	20
5 x 7	35
5 x 8	40
6½ x 8½	56
8 x 10	68

Send for a sample print.

THOS. H. McCOLLIN & CO.,

MANUFACTURERS,

1030 Arch Street, Philadelphia, Pa.



Model of 1893.

HEMPERLEY'S MAGAZINE FLASH LAMP.

SELF LOADING.

For Use With PURE MAGNESIUM POWDER Only.

Manufactured Under the HEMPERLEY PATENT.

In offering our New Magazine Flash Lamp to the Photographic Fraternity both professional and amateur—we do so believing it to be the best article of the kind yet placed on the market.

Each lamp is supplied with a patent rubber bulb, ***with a valve,*** which prevents any of the powder being drawn back in the hose or bulb, and in time clogging the air passage.

If you have failed with other Flash Lamps, try our Model of 1893, for a trial will convince even the most skeptical that it is the simplest and really the best form of Lamp yet produced.

Price of Lamp, complete, - - - $2.75
Magnesium, Fine Ground, per oz., .40

All parties are notified that we control the Patents under which this Lamp is manufactured, and propose to protect ourselves against all infringements.

FOR SALE BY ALL DEALERS.

THOS. H. McCOLLIN & CO.,

SOLE MANUFACTURERS,

1030 Arch Street, - - - - Philadelphia

SPOILED IN THE MOUNTING!

Your photographs are

SLOUCHY, SMOUCHY, COCKLY, SPOTTY,

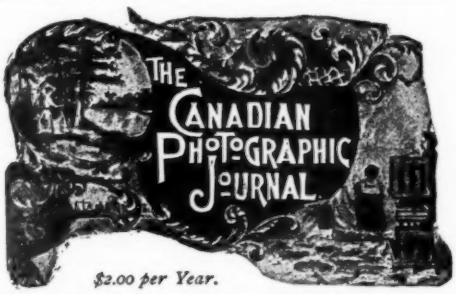
Because you have used an inferior or make-shift mountant.

Higgins' Photo Mounter is an always-ready adhesive which will not spill, spatter, nor drop off the brush. Never hardens, separates or becomes gritty. Does not cockle, strike through nor change the tone. Never molds, sours or deteriorates in any way. A unique adhesive, scientifically made to meet the special requirements of photographic mounting. Fully guaranteed. For sale by all dealers and jobbers.

CHAS. M. HIGGINS & CO., Sole Manufrs.,

168-172 Eighth Street, Brooklyn, N. Y.

GEO. W. GILSON, Editor and Publisher.



$2.00 per Year.

W. ETHELBERT HENRY, C.E., Associate Editor.

The handsomest journal of its kind. Each issue contains a photographic print by one of the leading workers of the day, is profusely illustrated in half-tones, and contains a wealth of "up to date" reading matter, formulæ, etc., of great interest and value to professionals and amateurs. Our Christmas number will be the finest ever published. Send ten cents for sample copy giving particulars of series of prize competitions.

P. O. Drawer 2602, Toronto, Ont.

The way to make uniform

VIGNETTES

is to use the KEYSTONE VIGNETTERS

5 x 7, $1.50 per dozen.

Made of papier mache and always ready for use.
Send for descriptive circular.

THOS. H. McCOLLIN & CO., 1030 Arch Street, Philadelphia, Pa.

A Print is not finished until it has passed through an

ENTREKIN
Improved Rotary Burnisher.

FITTED WITH TURN-BACK ROLL AND SWING FIRE-PAN.

THE CHEAPEST AND BEST MACHINES NOW IN THE MARKET.

These Burnishers are especially adapted to burnishing prints made on the

American "Aristo" Paper.

Your supply house will send you descriptive pamphlet.

PRICES.

8 in. Roll, $12.00.	10 in. Roll (light), $15.00.	10 in. Roll (heavy), $25.00.
15 in. Roll, $30.00.	20 in. Roll, $40.00.	25 in. Roll, $55.00.

Subscribe to Anthony's *Photographic Bulletin*, monthly, $2.00 per year.

E. & H. T. ANTHONY & CO.

591 BROADWAY, - - - NEW YORK.

When purchasing a developer please be particular to specify **Schering's,** the oldest and most favorably-known brand.

Put up with labels and seals as per fac similes here given.

ONE OUNCE
PYROGALLIC ACID
RESUBLIMED
From E. SCHERING,
MANUFACTURING CHEMIST, BERLIN, GERMANY.

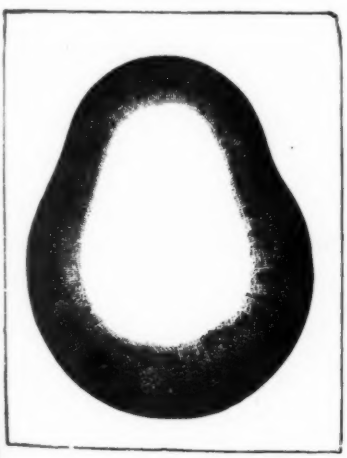
SEE THAT YOU GET THE "GENUINE SCHERING'S."

E. SCHERING, BERLIN. TRADE-MARK.

REGISTERED.

FOR SALE BY ALL DEALERS.

Waymouth Vignette Papers.



WAYMOUTH'S VIGNETTE PAPERS

Are the best means for producing fine effects in printing. They are made in nineteen sizes; printed in black, yellow, and red bronze, to suit different qualities of negatives. They are not clumsy, do not break, cost but little, and are easy of application to any negative. They do away with all the older methods; and, in fact, they have no equal. We have quantities of testimonials; but the best guarantee of their quality and work is their increasing popularity and our increased sales. Better than any patent machine, and sell better every month.

PRICES.

In parcels containing one dozen, assorted, Nos. 1 to 5,	$0 50
In parcels containing one of each size, Nos. 1 to 15, assorted colors	1 00
Assorted sizes and colors, by number, per package of 15	1 00
Nos. 1, 2, 3, 4, and 5, assorted sizes and colors, for Cartes, by number, per dozen	50
Nos. 6, 7, 11, 12, and 13, assorted sizes and colors, for large Cartes and Victorias, by number, per doz.,	75
Nos. 8, 9, 10, 14, 15, and 15½, assorted sizes and colors, Cabinets and Whole-size, by number, per dozen	1 40
Nos. 16, 17, and 18, assorted sizes and colors, Half-cabinets and Whole-size, by numbers, per doz.,	1 52

When ordering, state the number and color you want.

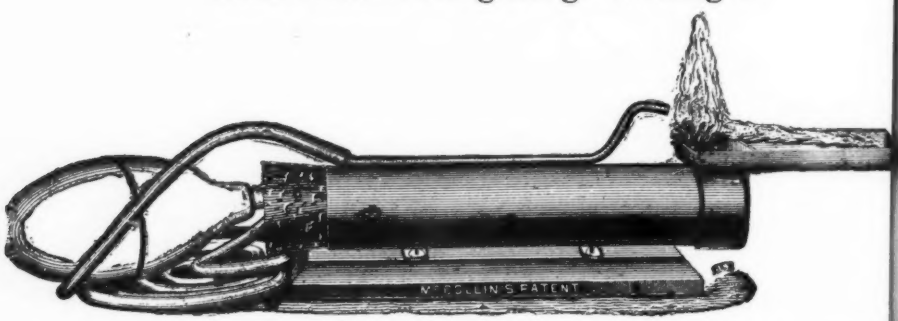
Thos. H. McCollin & Co., 1030 Arch Street, Phila.

TRADE AGENTS.

EXPERIMENTERS WITH THE

Blitz-Pulver . . . . . Flash Light

Will find the little apparatus devised and patented by Thos. H. McCollin a most effectual means for igniting the charges.



IT is simple, easily managed, very effective. It is worked with a pneumatic tube and bulb, so that the sitter is wholly unconscious that exposure is about to be made. Hence a natural expression is secured and a graceful, unrestrained attitude. Protects the eyes of the operator and prevents scorching of the fingers. The virtues of the powder are also increased by the employment of the ignitor. A current of hot air is supplied to the nozzle of the blow-pipe, making it almost equal to a hot blast, augmenting thereby the degree of incandescence of the magnesium-oxide formed by combustion.

CALL AND SEE THE APPARATUS, OR SEND FOR A DESCRIPTIVE CIRCULAR.

PRICE $1.50.

THOMAS H. McCOLLIN & CO.

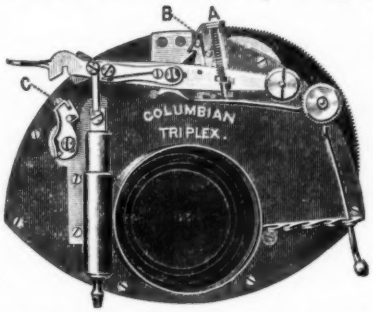
1030 Arch Street, Philadelphia.

PROSCH MANUFACTURING CO.

Wholesale and retail manufacturers of Photographic Shutters.

COLUMBIAN-TRIPLEX

Has automat c safety shield thereby adapting it for use with Roll Film Hand Cameras.



TRIPLEX-
STEREO.
ATHLETE.
RAPID.
NOUVEAU
STORAGE
FLASH-LAMPS

IN BRASS OR ALUMINUM.

389 BROOME STREET, ... NEW YORK, N. Y.

The **"Blue Book"** for Amateur Photographers.

American Edition, 1895, in Preparation.

This Edition will contain revised lists of officers and members of Photographic and Allied Scientific Societies in the United States and Canada.

List of "Dark Rooms" and Dealers in all Countries, which will include Hotels, Photographic Dealers, Opticians, and Chemists with Supplies, and Professional Photographers in the United States, Canada, and Mexico.

Price, prepaid subscriptions, Cloth, $1.00; paper, 75 cents. Postpaid to any address on day of publication.

Advertisements Solicited. **Correspondence Invited.**

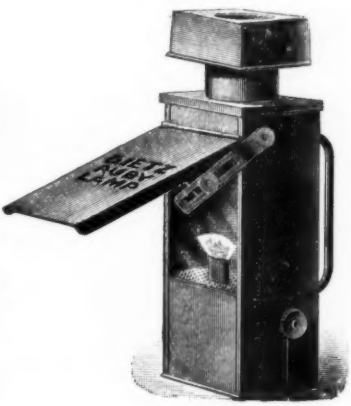
WALTER SPRANGE, Editor, Beach Bluff, Mass., U. S. A.

"Dietz" Ruby Lamp

For Dark Room Use.

New construction. Perfect combustion. Bright light. Don't Leak Light. Size, 1½x6½. Circular free. Sample by mail postpaid for 75 cents.

Tin, Japanned Black, ... 75 cts.
Polished Brass, ... $1.50



R. E. DIETZ CO.,

60 LAIGHT STREET, NEW YORK.

PATENTS

FOR INVENTIONS.

Equal with the interest of those having claims against the government is that of INVENTORS, who often lose the benefit of valuable inventions because of the incompetency or inattention of the attorneys employed to obtain their patents. Too much care cannot be exercised in employing competent and reliable solicitors to procure patents, for the value of a patent depends greatly, if not entirely, upon the care and skill of the attorney.

With the view of protecting inventors from worthless or careless attorneys, and of seeing that inventions are well protected by valid patents, we have retained counsel expert in patent practice, and therefore are prepared to

Obtain Patents in the United States and all Foreign Countries, Conduct Interferences, Make Special Examinations, Prosecute Rejected Cases, Register Trade-Marks and Copyrights, Render Opinions as to Scope and Validity of Patents, Prosecute and Defend Infringement Suits, Etc., Etc.

If you have an invention on hand send a sketch or photograph thereof, together with a brief description of the important features, and you will be at once advised as to the best course to pursue. Models are seldom necessary. If others are infringing on your rights, or if you are charged with infringement by others, submit the matter to us for a reliable OPINION before acting on the matter.

THE PRESS CLAIMS COMPANY,

618 F STREET, NORTHWEST, WASHINGTON, D. C.

P. O. Box 385. JOHN WEDDERBURN, Managing Attorney.

☞This Company is managed by a combination of the largest and most influential newspapers in the United States, for the express purpose of **protecting their subscribers** against unscrupulous and incompetent Patent Agents, and each paper printing this advertisement vouches for the responsibility and high standing of the Press Claims Company.

☞**Cut this out and send it with your inquiry.**☜

General or local Ladies or gents, **Agents. $75** a week. Exclusive territory. **The Rapid Dish Washer.** Washes all the dishes for a family in one minute. Washes, rinses and dries them without wetting the hands. You push the button, the machine does the rest. Bright, polished dishes, and cheerful wives. No scalded fingers, no soiled hands or clothing. No broken dishes, no muss. Cheap, durable, warranted. Circulars free

W. P. HARRISON & CO., Clerk No. 12, **Columbus, O.**

JOHN R. NOLAN

Patent Attorney,

134 S. NINTH STREET, PHILA.

Patent Practice Exclusively.

No Alum.—No Sulphuration.—No Yellow Prints.

SENSITIZED

ALBUMA PAPER

An Entirely New Product.

Requires no alum, hardening or softening solutions.

Lies perfectly flat at all times.

Has an absolutely insoluble film.

PRICE LIST.

	Doz.	Gross
2¼x3¾ (Carte de Visite)	$ .10	$ .60
3 x4 (Mantello)	.10	.70
3¼x4¼	.10	.80
4 x5	.15	1.00
3⅞x5½ (Cabinets)	**.15**	**1.00**
4 x6	.15	1.00
5 x7	.20	1.75
5 x8	.25	2.00
5½x7¾ (Paris Panel)	.30	2.50
6½x8½	$ .40	$3.00
7 x9	.45	3.50
8 x10	.50	4.00
10 x12	.65	6.00
11 x14	.75	7.50
14 x17	1.15	12.00
16 x20	1.50	16.00
18 x22	2.00	20.00
20 x24	2.00	24.00

SECONDS.—A limited quantity of Cabinet and 4x5 Seconds at 50c. per 100.

CABINETS. Postage Paid, $1.10 per Gross.

Send 17 cents in stamps for sample dozen, Cabinets or 4x5.

NEW YORK ARISTOTYPE CO.,

BLOOMFIELD, NEW JERSEY

Chicago: 21 Quincy Street.

ORDER FROM YOUR DEALER.

"Now, Look Pleasant!" The best thing you ever had in your gallery.

LAVETTE'S PATENT ENVELOPE

FOR MAILING PHOTOGRAPHS.

There is not one person in a hundred who has not mailed from one to a dozen photographs, AND NOT ONE KNOWS HOW TO DO IT PROPERLY. Heretofore they resorted to cutting up pasteboard boxes to obtain two boards because they wanted it protected on both sides (and it must be) wrapped and tied it up, and sent it as 3D CLASS MAIL MATTER among 1, 2, 3 and 4-lb. packages (it's broken nine times out of ten), then wrote a letter and sent it separately, each costing 2c. THIS ENVELOPE IS THE ONLY PROPER, HANDY AND SECURE WAY TO MAIL PHOTOGRAPHS. It is made of fine manilla paper, with a board on each side. Write your letter, place photograph on top of it (as shown in cut) fold over back marked B, seal with gummed flaps A A A. Then it goes as 1ST CLASS MAIL MATTER, among letters only, protected on both sides against stencil marks, breakage, etc. Postage 4c, the same as if sent separately.

Patented 1891.

H. C. LAVETTE,
Patentee and Sole Manufacturer,
199–201 Randolph St., Chicago, Ill.

Every day you give your customers plain Envelopes to mail some of their Photographs. Also gave them old mounts and cut up cardboard, etc., to protect them, when requested,

WHAT DID YOU GET? NOTHING!

WAS IT A LOSS OF TIME AND EXPENSE? YES!

Above Envelope is now sold by over 2,000 photographers. It saves expense and time and

PAYS A PROFIT OF 150%

AND OBLIGES YOUR CUSTOMERS.

All that is asked of any photographer is, try two boxes, or 250 Envelopes, put up the display cards furnished in each box, and if results are not satisfactory don't order any more but **DROP IT AT ONCE!**

	PUT UP.	PRICE PER 1000.	PER BOX.	RETAIL.
Cabinet size,	125 in a box,	$10.00	$1.25	2 for 5c.
6x8½	100 "	25.00	2.50	5c. each
8¾x10¾	50 "	35.00	1.75	10c. each

THE ONLY PROPER ENVELOPE EVER INVENTED.
WE HAVE THEM. SEND IN YOUR ORDERS.

Beware of infringements. A few have tried to beat above envelope, but not onehas even tied it. All infringements will be prosecuted.

FOR SALE BY ALL JOBBERS.

"Economy is wealth."

McCOLLIN & CO.'S

Embossing Machine.

Every Photographer his own Printer.

With this machine you can emboss your own mounts, either plain, or in gilt, silver or color. The manipulation is plain and easy, and will work from minature size to 25x30.

The operation is inexpensive, saving you $1.00 to $4.00 per 1000 in cabinet mounts, and can be done by a boy or in spare moments in wet weather.

On large mounts and odd sizes the saving of time is much greater. No picture should leave your gallery without your name and address.

This machine enables you to insure this without long delay in waiting for special cards.

We will be pleased to send on application samples of the work done with this machine.

Price complete with die, bronzes, etc., $25.00.

Thos. H. McCollin & Co.

MANUFACTURERS,

1030 Arch Street, Philadelphia, Pa.

Dresden Photo-Paper Works.

OFFICE:
621 BROADWAY,
CABLE BUILDING, ROOM 531,
NEW YORK.

FACTORIES:
DRESDEN, GERMANY;

Manufacturers of the Celebrated

SATIN DRESDEN

TRADE MARK.

Albumen Paper Pensée.

This paper, made by a new process, is equal to any "Aristo" paper in gloss, and surpasses them by far in regard to their printing and toning qualities.

SAMPLES SENT ON APPLICATION.

FOR SALE BY ALL STOCK DEALERS.

Dresden Photo-Paper Works.

THOS. H. McCOLLIN & CO.'S

Professional Flash Lamp

PATENTED.

Used with Blitz Pulver.

FOR PORTRAITS, LARGE GROUPS, INTERIORS AND STAGE EFFECTS.

Takes the place of daylight on dull days, takes the place of a skylight on bright days.

As manufacturers of Blitz Pulver, which is used by all manufacturers of Professional Flash Machines, we feel that we are in a position to know what photographers want.

We believe FLASH LIGHT WORK HAS COME TO STAY, and after careful experimentation, we have produced a lamp which combines SIMPLICITY, ECONOMY AND EFFICIENCY. We invite correspondence from photographers, and will publish from time to time samples of the work of the machine in this journal.

This machine requires no gas or gasoline,—burns alcohol,—and is used with Blitz Pulver exclusively. The cut will show its construction.

Thos. H. McCollin & Co.

MANUFACTURERS AND PATENTEES,

1030 ARCH STREET, PHILADELPHIA, PA.

Blitz-Pulver

Blitz-Pulver

Blitz-Pulver

Has a record for flash-light work which is unapproached. No other powder in the United States can show the indorsements of every individual manufacturer of professional flash-lamp which are successfully on the market. Read what they say of it, and then judge. Do not deceive yourself. Flash-light work has come to stay.

ST. JOSEPH, MO., October 6, 1894.

Thos. H. McCollin & Co.

Messrs.:—In regard to your inquiry I will say, I advise the use of "Blitz Pulver" with our machine, and I have used no other powder in getting out our sample negatives. It operates in our machine with unvarying success.

Very respectfully yours,
L. G. BIGELOW.

BRIDGEPORT, CONN., October 17, 1894.

Thos. H. McCollin & Co.

Gentlemen:—We have tried various compounds for flash light powders now on the market, but yours gives the best satisfaction with our machine.

Yours truly,
FAIRCHILD FLASH LIGHT CONCERN.

SAN FRANCISCO, CAL., February 16, 1894.

Gentlemen:—In regard to Blitz Pulver we have always recommended your powder, and our instructions call for it and no other. It is the best powder we have ever used.

[Signed] WILLIAMS & SHEPARD,
Manufacturers Williams Flash Machine.

CORTLAND, N. Y., October 8, 1894.

Thos. H. McCollin & Co., Philadelphia.

Gentlemen:—Will say in regard to "Blitz Pulver" that it is the only flash powder of which we have any knowledge that can be relied upon at all times. We send it out and advise its use with the *Westcott* Flash Machine. When used with this machine it produces beautiful results and with very little smoke.

Respectfully,
WESTCOTT & LEWIS.

MUSCATINE, IA., October 5, 1894.

Thos. H. McCollin & Co., Philadelphia.

Dear Sirs:—We manufacture and sell flash light machines and of all powders we have used find none to compare with Blitz Pulver. We have used it for for all kinds of work, big heads, full forms, opera house stages and interiors, and always find it reliable and quick acting.

Yours respectfully,
CLIFFORD & SON.

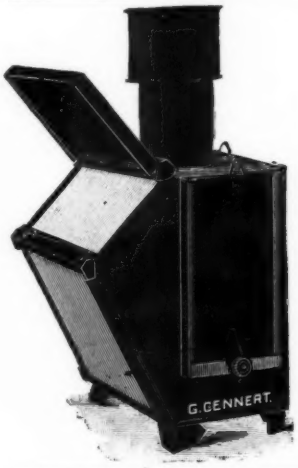
Price, 60 cents per ounce.

THOS. H. McCOLLIN & CO.,

SOLE MANUFACTURERS,

1030 Arch Street, - - - Philadelphia, Pa.

1 2 3



REASONS WHY
THE . . . .

Marvel Lamp

SHOULD BE
IN EVERY DARK-ROOM

1 Excels all others in size and strength of light—absolutely non-actinic—perfect safety from fogging, chimney (4 x 6 inches) secures perfect combustion and freedom from smoke.

2 Has inclined ruby glass (6x8 in.) concentrating the light on plate and protecting the operator's eyes; has opal glass (4x6 in.) for examining plates, but covered by shield during development. All joints are properly covered. Lamp stands on table or hangs from wall.

3 Its price is only **$4.50**

No Such Lamp has Ever been Offered at the Price

G. GENNERT

MANUFACTURER

24 & 26 E. 13th Street NEW YORK

. . IF YOU WANT . .

Patent Leather

PHOTOGRAPHS

YOU

Can't Get Them

ON

EAGLE

ALBUMEN PAPER

It gives only the rich, soft effect that has been wanting in your work since you commenced using Aristotype Papers

G. GENNERT

Sole Importer

New York

Lenses Lenses

SPECIAL BARGAINS

1—6½x8½ Single Lens	$ 3 00
1—10x12 Wide Angle Darlot Lens	20 00
1—16x20 Wide Angle Darlot Lens	35 00
1—5x8 Single Lens	2 00
1—R. O. Co's. Finder	75
1—5x8 Gundlach Rapid Rectilinear Lens	10 80
1—8x10 View Lens and Shutter	12 00
1—4x5 Wide Angle Lens	10 00
1—8x10 Mogey Wide Angle Lens	19 00
1—8x10 Gundlach Rapid Rectilinear Lens	16 20
1—11x14 Extreme Angle Lens	30 00
1—5x8 Orthoscope Lens and Triplex Shutter	25 00
1—6½x8½ Orthoscope Lens and Triplex Shutter	27 50
1—8x10 Orthoscope Lens and Triplex Shutter	30 00
1—No. 1 Euryscope Lens, 6½x8½, list 45.00	30 00
1—4x5 Single Lens	2 50
1—5x8 Single Lens	3 50
1—6½x8½ Single Lens	4 50

Terms, Net Cash. Lenses sent on one week's trial, and can be returned if not satisfactory.

THOS. H. McCOLLIN & CO.

1030 Arch Street, Philadelphia, Pa.

Pronounced by the leading Photographers to be

Unquestionably the Best Print-Out Papers Made.

Photogenic Matt and Glace Papers.

Glace, $1.35 per gross.
Matt, $2.00 per gross.

PHOTOGENIC PAPER CO.,
ALBANY, N. Y.

A POSTAL WILL BRING A SAMPLE.

Have you tried the Photogenic Combined Varnish and Retouching Fluid?

Some of the Advantages

OF

ILO PAPER.

Prints Very Quickly.

Remarkably Easy to Manipulate.

No Waste, practically Perfect Prints from every Gross.

Tones Equally Well with Combined or Separate Bath.

Prints Positively Permanent.

Finished Product Unequaled.

A Trial

Will substantiate EVERY CLAIM.

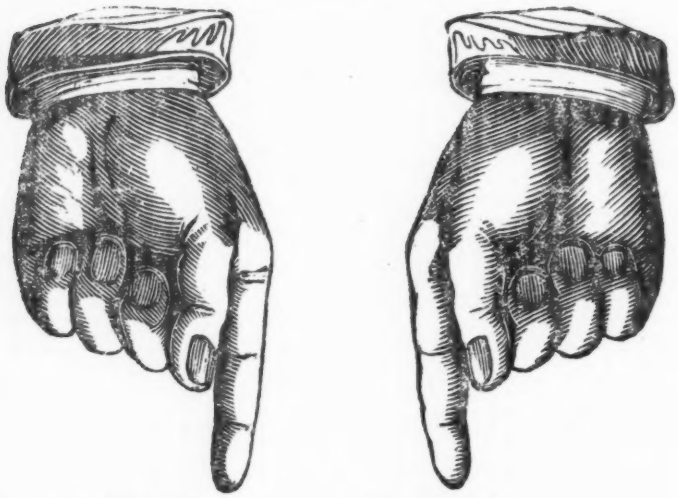
For Sale by your Dealer.

MANUFACTURED BY

THE ILOTYPE COMPANY,

NEW BRIGHTON, S. I., N. Y.

OFFICIAL REPORT!!



ST. LOUIS CONVENTION	EXHIBITS
AMERICAN "ARISTO" -	178
Gelatine Papers, - -	7
Other Papers, - - -	4

OHIO CONVENTION	EXHIBITS
AMERICAN "ARISTO," -	55
Gelatine Papers, - -	3
Other Papers, - - -	2

ALL FIRST PRIZES

At both Conventions Awarded to

AMERICAN "ARISTO."

[redacted]ean Aristotype Co.
Manufacturers,
[redacted]estown, N. Y.

E. & H. T. Anthony & Co.
Sole Agents,
591 Broadway, New York.

Alfred J. Ferris, Printer, 29 North Seventh Street, Philadelphia.